

# Appendix A

## Preparing for the Nine Months that Last a Lifetime

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*The following content was developed by the CHPAC and represents samples of outreach messages for the public pertaining to environmental exposures prior to conception and during the prenatal period. CHPAC recognizes that these messages reflect the current state of the science and have not been vetted for cultural relevance for various populations at risk. Also, CHPAC recognizes that crafting these messages into a form appropriate for dissemination will require the input from professionals with expertise in marketing, translation, and graphic design. Messages will need to be updated as future research is published.*

## Introduction

Congratulations! You are pregnant, preparing for pregnancy, or just had a baby. You want to do everything possible to make sure you and your baby are as healthy as can be. You already know that you should not smoke or allow people to smoke around you and that you should only take medicines or dietary supplements that have been prescribed by a health care provider. You may also have heard about things in the environment that can cause problems for you and the baby or about air or water pollution that can cause health problems.

### What You Need to Know:

- You are your baby's first "environment." What you eat, drink, put on your skin or breathe in can affect your baby.
- There are many chemicals in food, cosmetics, clothing, furniture, cleaning supplies and work environments that can be passed on to your baby through your placenta and breast milk.
- Many of the chemicals you come into contact with on a daily basis have not been tested for their impacts on human health.
- Your exposure to substances such as lead, mercury, and pesticides can negatively affect your child's growth and development.
- Asthma triggers in the home such as cockroaches, mice, and mold can impact you and your baby's health.

Fortunately, there are a number of simple steps you can take to help provide a healthy start for your baby. The information in this pamphlet will help you think about these important issues and allow you to take action so you and your baby can be as healthy as possible.

## Preparing Home for Baby

### General Preparation

There are many chemicals in food, cosmetics, clothing, furniture, cleaning supplies and work environments. Some of these chemicals may be harmful to a developing baby. The chemicals are in several places within the home, like in the air, on surfaces and in dust. Examples are carbon monoxide, radon, lead, mercury, and chemicals that disrupt hormones such as some phthalates and flame retardants (<http://www.healthychildren.org/English/safety-prevention/all-around/Pages/Environmental-Hazards.aspx>). Fortunately, there are steps you can take to protect yourself and your baby.

- Wash hands frequently, especially before preparing or eating food, to remove dust and chemicals. This is a good habit that helps protect your family from the spread of infections like colds or the flu. It also reduces exposure to chemicals from surfaces and dust. [http://www.hud.gov/offices/lead/library/hhi/HYHH\\_Booklet.pdf](http://www.hud.gov/offices/lead/library/hhi/HYHH_Booklet.pdf)
- Keep window sills and other flat surfaces free from dust, using a damp cloth to clean.
- Remove shoes when entering your home to decrease dirt and chemicals being tracked into the home.

- Vacuum carpets often to decrease dust and dirt levels. Dust can hold many chemicals, including lead, pesticides, flame retardants, allergens, and asthma triggers.
- Have working smoke detectors and carbon monoxide monitors in your home. <http://www.usfa.fema.gov/campaigns/smokealarms/alarms/index.shtm>
- Replace mercury containing thermometers with mercury-free thermometers. Mercury-containing thermometers should be disposed of as hazardous waste. Additional information can be found at <http://www.epa.gov/hg/thermometer-main.html> or by calling the Stericycle Mailback Program at 800-355-8773.
- Wash fruits and vegetables prior to eating to remove pesticide residues.
- Try to reduce the use of products with fragrances (for example perfumes and air fresheners) as they may contain phthalates.

### Preparing the Nursery

Preparing a new nursery may release lead dust if old paint is scraped or sanded and may increase levels of chemicals in the room from paints, carpets and carpet pads. It is best to do this well before your baby arrives to allow the room to air out. Painting can lead to high volatile organic compound (VOC) levels in the air for a few days after the painting is complete. You can avoid these exposures by asking a friend or family member to do major projects, such as painting, removing carpets, refinishing floors, and removing mold, in the nursery. If that isn't possible, here are some tips to follow:

- Lead-based paint: If your home or apartment was built before 1978, it may contain lead-based paint (For more information call 1-800-424-LEAD). Damaged paint and any repairs that disturb lead paint can release lead dust into the home. This can be harmful to you and your baby. Removal of lead-based paint should be performed by a certified contractor when you are out of the work area. After work is completed, you have the right to ask the contractor to provide written proof that the area is safe for you to be in, preferably with a dust test. State level tenant's rights can be found at [http://portal.hud.gov/hudportal/HUD?src=/topics/rental\\_assistance/tenantrights](http://portal.hud.gov/hudportal/HUD?src=/topics/rental_assistance/tenantrights).
- Painting: Choose "no VOC" or "low VOC" paints. Limit use of oil-based paints. Increase ventilation by keeping the windows open to avoid inhaling paint fumes.
- You should wear gloves to protect your skin from paint and cleaning products. Always wash your hands after working with these products.
- Carpets: Dust collects in carpets and can contain many chemicals, allergens, and asthma triggers. Vacuum carpets often to remove dust. Because carpet removal releases dust, have someone else do this work and clean up dust before you enter the room. Non-carpeted surfaces are easiest to keep free of dust.

### Other Products Used in the Home

Cleaning products and other household items contain numerous chemicals and volatile organic compounds that may be harmful to you and your developing baby. Use the following tips and recommendations to reduce and prevent harmful exposures.

- When using cleaning products, consider using less toxic products such as those certified by Green Seal® or Eco-Logo®. <http://www.epa.gov/epp/pubs/cleaning.htm>

- When using cleaning products, wear gloves, read the label and follow manufacturer instructions. Only purchase and use the amount of product you need.  
<http://www.aboutcleaningproducts.com/education/reading-a-label/>
- When selecting baby feeding products or food preparation/storage items, avoid those that contain bisphenol A (BPA) or phthalates. Use glass or stainless steel instead.  
<http://www.mayoclinic.com/health/bpa/AN01955>
- Children's painted toys and vinyl products (rubber duckies, rain coats) may contain high levels of lead, phthalates, and other chemicals. When selecting toys, use online resources to make the best choices.
- When selecting personal care products, consider using online resources to make safer choices.
- Use integrated pest management techniques (<http://www.epa.gov/pesticides/ipm/index.htm>), including repairing cracks and holes, fixing water leaks, and other moisture sources, keeping food and garbage tightly covered, and using gels and baits in childproof containers to prevent and control pest infestations. Avoid use of pesticide sprays, foggers or bombs indoors.
- Ensure all medicine, cleaning products and home pesticides are out of reach of children or in a locked cabinet. Keep all products in their original containers.  
<http://www.healthychildren.org/english/safety-prevention/at-home/medication-safety/Pages/default.aspx>

## Lead in Pregnancy

### How dangerous is lead?

Exposure to lead while the brain is developing - in the womb and in the first six years of life - can permanently lower a child's intelligence and cause behavior problems. Lead is a metal that was added to paint and gasoline until the 1970s. Lead lasts for many years in the environment so it may be present in the house dust of old homes and in the soil. It is also present in some imported consumer items such as cosmetics, health remedies, pottery, and toys. Lead in the mother's blood stream can enter the baby's body. The mother can also transfer lead to her baby through her breast milk.

### How can I reduce exposure to lead dust in my home?

- Maintain your home by
  - Wiping up dust and paint chips with a damp cloth, especially on windowsills and floors.
  - Using a wet mop on smooth floors at least once a week.
  - Wiping flat surfaces with a damp cloth at least once a week.
- If your home was built before 1978:
  - Have your home tested for lead and if hazards are detected, have them fixed.
  - Do not participate in home renovation that generates dust such as scraping off old paint or tearing down walls.

### What can I do to prevent lead exposure?

- Never eat non-food items like dirt, broken pottery, or paint chips.
- Use only medicines and remedies recommended by your healthcare provider. Check with your provider before using any herbal supplements or ayurvedic medicine products because some of these may contain high levels of lead, mercury, arsenic or other harmful ingredients. Eat foods enriched with iron (lean red meats), calcium (dairy products and green leafy vegetables), and vitamin C (oranges, grapefruits, tomatoes, and green peppers).
- Avoid using imported clay dishes, food storage or cookware and never use dishes with chips or cracks.
- Do not allow anyone to scrape off old paint, especially if your home was built before 1978. All renovations in older homes should be done by a contractor certified in lead-safe work practices.
- Check with your local water company to find out if lead pipes were used in your region and if your water needs to be tested for lead ([www.epa.gov/safewater](http://www.epa.gov/safewater)). Solder and plumbing fixtures can also be a source of lead in drinking water.
- Use water from the cold-water tap and let it run for a few minutes for drinking, cooking, and making baby formula.

## Do I need a lead test?

**Based on guidance from the US Centers for Disease Control (CDC) you may need a blood test for lead if:**

- You recently moved to the United States.
- Your family uses imported pottery or ceramics for eating, cooking, or storing food.
- You have used home remedies such as azarcon, greta, or pay-loo-ah.
- You have ever eaten clay, dirt, pottery, or paint chips.
- Anyone in your home is exposed to lead dust at work or during other activities, such as construction, battery manufacturing, auto repair, shooting ranges, and making bullets.
- You have anemia.
- You use imported cosmetics or herbal remedies.
- You live with someone who has an elevated blood lead level.
- You live in a home built before 1978.

## Healthy Fish Consumption

Some fish contain contaminants that can impact healthy brain development in the fetus, infant, and child.

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<b>Why is it important to eat a variety of fish?</b>	<b>Eat a Variety of Fish</b> <ul style="list-style-type: none"><li>• Fish and shellfish are lean, low-calorie sources of vital nutrients good for heart health and brain development.</li><li>• Childbearing-age women should eat 6-12 ounces of safe fish per week to support the healthy development of your baby's brain.</li><li>• Some fish take in more toxic chemicals depending on their size, age, the food they eat, and the water where they live.</li><li>• Eating a variety of fish helps maximize the benefits of eating fish and minimize harmful exposure to chemicals.</li></ul>
<b>What are some of the harmful effects of fish contaminants on the developing baby?</b>	<b>Choose Wisely</b> <ul style="list-style-type: none"><li>• Mercury<ul style="list-style-type: none"><li>○ Can harm the brain of the fetus, infant, and child;</li><li>○ Can be eliminated from our bodies over time but damage to a developing brain is never reversed;</li><li>○ No method of cleaning or cooking fish reduces the amount of mercury in a meal.</li></ul></li><li>• PCBs (Polychlorinated Biphenyls) (a banned substance persistent in the environment)<ul style="list-style-type: none"><li>○ Can damage the infant brain and the system that fights infection;</li><li>○ May cause cancer in humans;</li><li>○ Cleaning and cooking a fish to remove skin and fat will lower the amount of PCBs in a fish meal.</li></ul></li><li>• PBDEs (Polybrominated Diphenyl Ethers) (flame retardants)<ul style="list-style-type: none"><li>○ Can impact brain development</li><li>○ Can cause behavioral problems in children.</li></ul></li></ul>

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**How can you reduce your exposure to harmful contaminants in fish?**

**Know the Fish You Eat**

- Be aware of the type of fish you catch, purchase, or receive from a friend.
- There are state and national fish advisories with more information about which fish to eat—
  - *Kid Safe Seafood*: <http://www.kidsafeseafood.org/> (Search by Species then scroll down to Best Choices). This website provides species specific information on low-high contaminants, omega-3s, kid-safe best and worst choices, ocean-friendly sustainable harvest information, and meal-size guidelines for 0-6 and 6-12 year-olds.
  - *U.S. EPA website* links to regional and local fish advisories <http://water.epa.gov/scitech/swguidance/fishshellfish/fishadvisories/index.cfm>
- Check out this information from the *Joint FDA/EPA Brochure* advising pregnant women to eat up to 12 ounces of a variety of fish/shellfish per week (a standard deck of cards is roughly 3 ounces).

[http://water.epa.gov/scitech/swguidance/fishshellfish/outreach/advice\\_index.cfm](http://water.epa.gov/scitech/swguidance/fishshellfish/outreach/advice_index.cfm)

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<sup>1</sup> Daniels JL, Longnecker MP, Rowland AS, Goldin J, and the ALSPAC Study Team University of Bristol Institute of Child Health. (2004). Fish intake during pregnancy and early cognitive development of offspring. *Epidemiology*, 15(4), 394-402.

<sup>2</sup> Karagas MR, Choi AL, Oken E, Horvat M, Schoeny R, Kamai E, Cowell W, Grandjean P, Korrick S. (2012). Evidence on the human health effects of low-level methylmercury exposure. *Environmental Health Perspectives*, 120(6), 799-806.

<sup>3</sup> Kris-Etherton PM, Harris WS, Appel LJ. (2002). Fish consumption, fish oil, omega-3 fatty acids, and cardiovascular disease. *Circulation*, 106, 2747-2757.

<sup>4</sup> Williams C, Birch EE, Emmett PM, Northstone K, Avon Longitudinal Study of Pregnancy and Childhood Study Team. (2001). Stereoacuity at age 3.5 y in children born full-term is associated with prenatal and postnatal dietary factors: a report from a population-based cohort study. *American Journal of Clinical Nutrition*, 73(2), 316-22.



## Preventing Exposure to Pesticides

Pesticides are chemicals that are used to kill common pests such as insects, rodents, and weeds.

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**Why is it important to reduce your exposure to pesticides before and during pregnancy?**

- Pesticide exposure can be dangerous to developing babies.
- Harmful effects can occur if the mother is exposed while pregnant.
- Pesticide exposure to women and men before the pregnancy starts can also contribute to harmful effects on the developing baby.
- Some pesticides can remain in the body for several months or more, so it is important to take preventative action now to reduce exposures.

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**What are some of the harmful effects of pesticides for your developing baby?**

- Miscarriage or spontaneous abortion
- Increased risk of birth defects
- Damage to the developing brain that can change your baby's learning and behavior
- Premature birth
- Increased risk of childhood leukemia

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**Where can you be exposed to pesticides?**

- In or around your home or garden, workplace, or school
  - Around your community such as in parks and near roadways and agricultural fields
  - In some fruits and vegetables
  - In air, dust, and water
  - In some treatments for lice, fleas, and scabies
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**How can you reduce your exposure to pesticides?**

**Prioritize Pest Prevention**

- Use pesticide-free methods for pest prevention in your home and garden.<sup>1,2</sup>
- Prevent pests from entering your home by sealing entry points with caulk, sealants, or screens which are available at your local hardware store.
- Eliminate hiding places and water sources that might attract pests.
- Store food and trash in closed containers.
- Clean up dishes and food spills as quickly as possible.
- Use non-chemical methods to control weeds, such as regular mowing and hand-weeding.

**Choose Safer Pest Control**

- Do not use pesticides in the home and garden, if possible.
- To help control fleas without pesticides, comb pets with a flea comb, regularly bathe pets with a pesticide-free shampoo, and wash pet bedding.
- Do not use the pesticide lindane to treat lice and scabies. Combing is the most important aspect of head lice control.<sup>3</sup>
- If a pesticide is needed:
  - Use baits and traps instead of sprays, foggers, or “bombs.” Place baits and traps where kids can’t get to them.
  - Follow directions for use, storage, and disposal to limit your exposure.
  - Do not use flea-and-tick collars, or flea “dips” or baths for your pets. Consider safer spot-on treatments or oral medications for your pets.

**Establish Healthy Habits**

- Consider choosing organic fruits and vegetables, especially apples, bell peppers, celery, spinach, peaches, nectarines, kale, grapes, potatoes, cherries, blueberries, and strawberries.
  - Remember to always scrub fruits and vegetables under running water before eating them.
  - Remove shoes when you enter the home, to avoid tracking in dirt and dust that may contain pesticides.
  - If you work with pesticides, wash your hands after each use and change out of your work clothes before (or immediately after) you go home.
  - Because pesticides can be in dust, vacuum and clean your floors regularly and use a damp cloth to dust, and wash your hands often, especially before eating or preparing food.
  - If you have a home or community garden, contact your agricultural extension for information on soil testing. Use raised beds as a good gardening practice, especially if your garden soil may contain contaminants.
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<sup>1</sup> Tips for pest prevention: [www.cdpr.ca.gov/docs/dept/factshts/pull2.pdf](http://www.cdpr.ca.gov/docs/dept/factshts/pull2.pdf)

<sup>2</sup> Citizen’s Guide to Pest Control and Pesticide Safety, at [http://www.epa.gov/oppfead1/Publications/Cit\\_Guide/citguide.pdf](http://www.epa.gov/oppfead1/Publications/Cit_Guide/citguide.pdf)

<sup>3</sup> See US EPA Integrated Pest Management for Schools, Chapter 11, at [http://schoolipm.utk.edu/documents/epa\\_ipmmanual/EPA\\_IPMmanual\\_chap-11.pdf](http://schoolipm.utk.edu/documents/epa_ipmmanual/EPA_IPMmanual_chap-11.pdf).