**Routine Advice continued**

**Parental Exposures**

- Lead stored in the bones of pregnant women from earlier exposures may leach into the bloodstream during pregnancy resulting in fetal exposures.
- Although chemical contaminants are contained in breast milk, breast-feeding is still recommended as most beneficial to the developing child.
- About 6 million women in the U.S. in their childbearing years eat sufficient amounts of mercury-contaminated fish to put their children at risk for learning and attention problems.

**Chemicals and Testing**

- Most pesticides have not been subjected to neurodevelopmental testing.
- Over a billion pounds of registered pesticides are applied commercially each year.
- About 3000 of a total of 80,000 chemicals in commerce are produced in very high volumes (more than one million pounds per year). Only a small fraction of the 3000 have been adequately tested for their toxicity to humans and far fewer for neurotoxicity. A proposed voluntary testing program would not require that such chemicals be tested for effects on the developing brain and nervous system.

**Resources**


**Pesticide Hotline**: 800-858-7378 – Internet accessible at http://ace.orst.edu/infonotn

**Pregnancy/Environmental Hotlines**: Organization of Teratology and Information Services - www.otis.org for state hotline numbers

**Association of Occupational and Environmental Clinics**: 202-347-4976 http://www.aoec.org – Provides list of clinics and specialists around the country and has an extensive lending library including case studies

**Out of Harm’s Way: Reducing Toxic Threats to Child Development**

**Health Care Provider Fact Sheet**

**Your patients 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. Many of these chemicals, such as lead, mercury, PCBs (polychlorinated biphenyls), dioxin, pesticides and solvents, are known neurotoxicants. Exposures to these chemicals during critical periods of early brain development can have lifelong adverse effects and contribute to learning, behavioral and developmental disabilities. Health care providers can help prevent unnecessary risks to child development by offering simple, common sense guidelines for reducing potentially harmful exposures to known and suspected developmental neurotoxicants. This fact sheet provides busy clinicians with essential information on key toxicants and their effects. It also provides suggestions for routine patient advice and a strategy to help patients identify and reduce potentially harmful exposures.**


**References for Key Points can be found in the report In Harm’s Way: Toxic Threats to Child Development, GBPSR, May 2000. The report can be downloaded for free or ordered at http://www.igc.org/psr.**

**References for Routine Advice to Patients can be found in Generations at Risk: Reproductive Health and the Environment, MIT Press, 1999. Authors Ted Schettler MD MPH, Gina Solomon MD MPH, Maria Valenti and Annette Huddle MES, and “Creating a Healthy Environment for Your Child’s Development,” GBPSR, 2001 (a companion factsheet in the In Harm’s Way series).**

**Chemical exposure guidelines, maximum intake to reduce mobilization of bone lead.**

**Peptide**

- About 6 million women in the U.S. in their childbearing years eat sufficient amounts of mercury-contaminated fish to put their children at risk for learning and attention problems.
- Although chemical contaminants are contained in breast milk, breast-feeding is still recommended as most beneficial to the developing child.
- About 6 million women in the U.S. in their childbearing years eat sufficient amounts of mercury-contaminated fish to put their children at risk for learning and attention problems.

**Parental Exposures**

- Lead stored in the bones of pregnant women and mobilize during pregnancy.
- Bioaccumulated lead stored in bones can re-mobilize into the bloodstream during pregnancy.

**ADVICE:**

- Eat fatty meats (beef, pork, poultry, fish) and dairy products are responsible for over 95% of human exposure to dioxin and polychlorinated biphenyls (PCBs). ADVICE: Eat lower on the food chain (non-vegetables, fruits, grains, beans); choose low or non-fat animal products (lean beef, fish, poultry; minimize high fat cheese; drink low-fat or skimmed milk). See dietary advice above.

**3. Lead**

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Suggested Routine Questions to Ask Patients

Chlorine is not without expertise in environmental health and occupational health can screen for exposures of concern and provide common sense responses to most identified exposures. Environmental questions are readily addressed in a standard history. “COPPER” provides a framework for inquiring about potentially harmful exposures, (Community, Home/Hobbies, Occupational, Personal. For children, school should also be included). The last question at each of these five providers can select areas of inquiry that are relevant to a particular patient.

- What is your occupation? What are your hobbies? Do you know if you are exposed to work, home, school, or personal chemical alternatives to pesticides for home, garden, and pets. If pesticide use is absolutely necessary, use the least toxic alternative. Pregnant women and children should leave and not return to treatment is complete and the house well ventilated. Butler and crack control treatment are preferable to liquids, sprays, powders and dusts. Keep all pesticides out of reach of children and pets. Ask your veterinarian for non-pesticide alternatives for treating fleas and ticks on pets. Head lice can be effectively treated with nits combs, and do not require the use of potentially neurotoxic pesticides. Pregnant women should not treat head lice without chemicals, see, for example, http://www.pesticide.org/factsheets.html#alternatives.

- What are the occupation and hobbies of your spouse or others in the home? (Fiscans can be brought home on clothing.)

- Dietary questions—What are your sources of protein? How much/what kind of fish do you eat? Do you take vitamins, or herbal supplements?

- Do you tend to eat foods high in animal fat (fast food, ice cream, cheese, whole meat pies and/or fish)?

- Do you smoke, or use alcohol or drugs? (Usually covered in the general history.)

- Is your house built before 1978? If so, has it been tested for lead paint? If your home does have lead paint, is it flaking? Do you grow your own vegetables? (Lead uptake from soil is highest for root crops, then stem crops follow, and leafy vegetables, which have the lowest uptake.)

- Do you know of any hazardous waste sites, facilities of concern (auto repair shops, dry cleaners) or major industrial emissions in your neighborhood? Are there any chemical odors at home or in the community?

- What is the source of these odors? Do you have a recent water quality report? If it is a private well, has the water been tested?

- What is your personal care products you use or your children use? (Some contain lead/mercury/solvents—see next page.)

- Do you have a mercury fever thermometer in the house? (If yes, advise the patient to consider exchanging it for a digital one.)

Preventing Harmful Chemical Exposures

Routine Advice for Patients

Products to Avoid

Pesticides

Many pesticides are commonly used in the home, garden, and on pets are neurotoxic. Pesticides are also contained in some head lice treatments. ADVICE: Use personal care products, such as mercury thermometers. When a mercury thermometer breaks, look for mercury evaporates and is readily inhaled and absorbed. If disposed of into the waste stream, thermometers become a source of environmental mercury, further contributing to fish-mercury contamination. Fluorescent lamps, some types of batteries, and some skin whitening agents also contain mercury. ADVICE: Avoid products that contain mercury. Many communities are organizing hazardous waste collection, community recycling exchanges, where local mercury thermometers can be exchanged for new digital ones. Try to recycle battery buttons and fluorescent lamps—check with your community hazardous waste collection, community recycling department, or Department of Public Works.

Solvents

Alcoholic beverages, gasoline, most furniture strippers, glues, adhesives, sealants, paint thinners, and some paint, cleaning solutions and cosmetics contain solvents. Most dry cleaning is done with a toxic solvent (perchloroethylene). ADVICE: Forgo use of any dry cleaning products. If dry cleaning is necessary, use the least toxic alternative. Pregnant women and children should not use is stored in fish muscle.

- During puberty/adolescence, the brain is still developing. In addition, chemicals that bioaccumulate during this time can later be passed to the fetus during pregnancy, and to the infant during breast-feeding. Therefore, reducing toxic exposures should be considered both current and future generations.

- A metabolite of one of the most commonly used organophosphorous pesticides is present in the urine of over 80% of adults and 90% of children from population samples.

- Over a million children in the U.S. exceed the currently accepted threshold for blood lead level exposure that affects I.Q.