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MEMORANDUM

FROM: Vancouver Health Department Lead Study Team

TO: all families participating in the Lead Study

DATE: 27 November 1989

SUBJECT: Reducing Your Child's Exposure to Lead in the Environment

Sources of Exposure to Lead

For centuries, people have used lead for many different industrial purposes. Because of this, lead is now everywhere: in air, soil and dust, in our food and drinking water, and even in our bodies. Some lead is present in every person's blood.

The 3 main sources which account for most of the lead in the bodies of city-dwellers are: (1) air pollution, (2) lead in solder, and (3) lead in paint. Other sources, which affect only some of us, are: (4) working in a lead-related industry, (5) lead-related home hobbies, and (6) lead in pottery glazes.

1) air pollution

Automobiles using leaded gasoline emit lead in their exhaust. Lead is also present in smoke and dust from metal smelters, incinerators, and other industries. Lead particles in the air settle to the ground, or are washed down by rain, and become part of the soil and dust in our cities and in our houses.

Dust and soil get into our food, we breathe dust into our mouths and throats, we touch our faces and lips with dirty hands, we put things into our mouths. In this way, small amounts of lead in dust and soil are ingested daily by all of us, especially young children.

2) lead in solder

Solders are soft metal compounds used to bind together metal surfaces. Solders often contain lead. Solders are commonly used to join plumbing pipes, and to seal the seams on metal cans.

Water flowing through soldered plumbing can pick up small amounts of lead. Water which is acidic and soft (like in Greater Vancouver) dissolves more lead than water which is alkaline and hard (as in the Interior of B.C.)



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Hot water dissolves more lead than does cold water. When a tap is turned on, the first litre or so which comes out contains more lead, because it is water which has been sitting for a while inside the plumbing in the house.

Foods and beverages pick up tiny amounts of lead from solder in the seam of the can. More lead dissolves if the contents of the can are acidic (like tomatoes, juices, and vinegar), if the can is dented, damaged, or poorly soldered, or if food is left sitting in an opened can in the refrigerator.

3) lead in paint

Since before 1977 there have been laws in Canada limiting the amount of lead in paint for houses, furniture, and toys and other objects for children. But small amounts of lead are still allowed. Also, many houses and objects were painted years ago, when much more lead was allowed than now. Most of us live in homes with at least some lead in the layers of paint on our walls.

Flakes and particles of paint are produced during home renovations and repairs, and when paint ages and deteriorates. These flakes and particles fall to the floor or ground, becoming part of the dust in our homes and the soil in our yards. Lead in paint gets into our bodies when we swallow paint particles, as part of our daily intake of dust and soil. Children can take in additional lead from paint if they suck or chew on painted objects.

4) working in a lead-related industry

Examples of industries or jobs where workers could be exposed to leaded dust or fumes include: lead smelters, foundries, metal recycling plants, battery manufacturing, radiator repair, autobody working or repair, welding, plumbing, sandblasting, demolition, oil refineries, chemical processing plants, paint pigment manufacturing, painting, glass, pottery or ceramics manufacturing, and gun shooting galleries.

Dust gets into hair and clothes, and clings to skin and shoes. In this way workers can bring lead dust home, where it then falls off and becomes part of the housedust to which the whole family is exposed.

5) lead-related home hobbies

Examples of home hobbies or activities where leaded materials are used include: painting pictures with artists' paint, painting or refinishing furniture or antiques, painting bicycles or cars, working with stained glass, casting lead into fishing sinkers, bullets, or anything else, soldering electronic parts, soldering of pipes, making glazed pottery, and making jewellery.

Such hobbies can produce leaded dust or fumes. Also, children might handle, or put into their mouths, leaded hobby supplies or trash.

6) lead in pottery glazes

Since the early 1970's, there have been laws in Canada limiting the amount of lead in glazed pottery for cooking, food storage, or table use. As with paint, small amounts of lead are still permitted. Lead can dissolve into food or beverages cooked or stored in glazed pottery. More lead dissolves if the food or beverage is acidic (for example, tomatoes, juices, pickles, wine), or if the glaze is cracked or chipped. How much this affects the average person is not clear, but compared to the other lead sources we have described,

the exposure is probably small.

Lead in pottery glazes gets a lot of attention because once in a while, a serious case of lead poisoning occurs from a bad piece of pottery, usually pottery home-made by an amateur, or imported from a place with low quality and safety standards. However, such accidents are rare.

Ways to Reduce Your Child's Exposure to Lead

1) Feed your child enough Calcium and Iron.

Lead gets into our bodies when it is swallowed and then absorbed by our digestive tracts. Lack of Calcium or Iron causes the digestive tract to absorb more lead.

Children and young women often do not eat enough Calcium and Iron in their daily diets. You might wish to speak with a dietician or your doctor about foods rich in Calcium and Iron.

2) Reduce the amount of dust inside your house.

This applies to all families, but is more important if you live where dust and soil might have more lead than usual, for example, on a busy street or intersection, near a lead-emitting industry, or on land used before for industry or as a landfill site.

To reduce the amount of dust (and lead) in your house:

- a) Take off shoes before entering the house.
- b) Use a damp cloth to pick up dust.
- c) Wet-mop floors, avoid sweeping.
- d) Clean children's bedrooms and play areas often.
- e) Clean frequently near windows and doors.
- f) Clean window screens (vacuum or wash them).
- g) Cover windows with things that can be cleaned, like washable curtains or shades which can be wiped.
- h) Vacuum rugs and carpets often.
- i) Vacuum when children aren't around (vacuuming stirs up dust).
- j) Have regular pile carpets, avoid shag or deep pile.
- k) Cover the carpet with a sheet when baby plays on it.
- l) Cover upholstered furniture with washable covers.
- m) Brush pets often, and keep them out of children's bedrooms.
- n) If your home has a forced hot air furnace: clean ducts and change air filters regularly, and get a humidifier.

3) Reduce your child's exposure to dust and dirt in outdoor play areas.

Again, this is more important if you live where dust and soil might have more lead than usual.

- a) Cover bare soil in children's play areas with grass, or paving.
- b) Plush toys and blankets should be kept indoors, outside they just collect dust and dirt.
- c) Put sandboxes far from the road, preferably at least 60 feet away if on a busy street.

4) Keep dust and dirt out of your family's food.

- a) Wash leafy vegetables. Add some vinegar to the wash-water (about 2 teaspoons per litre) to help dissolve away lead particles.
- b) Scrub or peel root vegetables.
- c) Wash hands before handling or preparing food.
- d) Wipe kitchen counters and table-tops before preparing food on them.
- e) Wash hands and faces before eating.

5) Eat foods low in lead.

It's best to eat home-cooked foods, prepared from fresh ingredients. If you do buy canned goods, buy products sold in seamless cans, or cans with thin, flat seams. Avoid dented or damaged cans, or cans with wide, uneven seams, or visible smears of solder. If you don't finish a can, put the leftovers in a glass or plastic container for storage in the refrigerator.

If you grow your own vegetables, put your garden well away from the road (at least 60 feet away from a busy street), and away from rain gutter spouts and painted buildings. Add lime to the soil to keep the soil pH above 6.5. Plants will grow better, and they will absorb less lead from the soil.

If you live near a lead-emitting industry, or on land formerly used for industry or as a landfill site (including landfill with sewage sludge), you probably shouldn't grow food crops. Flowers and decorative plants are fine.

6) Reduce the amount of lead in your family's drinking water.

Before taking water for drinking or cooking, run the tap until the water is as cold as it will get. This is especially important the first time a tap is used each morning. Take water for drinking and cooking only from the cold water tap, not the hot water tap.

7) Reduce your family's exposure to lead in paint.

Keep painted surfaces in good repair, peeling or flaking paint adds lead to your home environment.

Whenever renovating or doing home repairs which involve scraping or sanding painted surfaces, protect your family from paint flakes and dust. In general: (i) children and pregnant women should live away from the home until the job is finished; (ii) carpets, rugs and upholstered furniture should be removed from the home or covered with plastic; and (iii) the job is not finished until the mess is cleaned up, this includes vacuuming and wet-mopping. These measures are more important if you live in a house with layers of old paint on the walls. The Health Department can provide you with more detailed advice about paint removal.

Children should not be given chances to suck or chew on painted toys or furniture.

Don't burn painted wood, metal, or coloured papers in your fireplace or stove.

8) Are you bringing lead dust home from work?

If you are exposed to lead at work, shower, shampoo, and change before coming home. Leave your work clothes and shoes at work. In British Columbia, employers are required by law to provide shower and change-room facilities for workers in lead-exposed jobs.

9) Are you using lead in any home hobbies?

If so, it's best to have a studio or workshop away from home, or at least in a separate part of your home. You should have a fume hood or ventilation fan which exhausts dust and fumes directly to the outside of the house. Shower, shampoo, and change after working at your hobby. Wash hobby clothes separately from the rest of the family laundry. Keep children out of your workshop, and away from hobby supplies. Regularly collect hobby trash, and dispose of it in a way that children can't get at it.

10) Think about your family's use of glazed pottery.

There are no definite rules about this, but you might want to be careful about storing acidic foods or beverages in glazed pottery, particularly if the glaze is cracked or chipped, or with homemade, or cheap imported pottery (especially if you carried it into Canada yourself).

"Do-it-yourself" kits are available to test pottery for lead. You can read more about these kits in the September 1988 issue of Consumer Reports.

11) Does your child have "pica"?

"Pica" is a medical term, meaning a habit of eating non-food substances (for example, paint flakes, plaster, paper, chalk, dirt etc.) Pica can greatly increase the amount of lead a child takes in from the environment.

Of course, it's normal for babies and young children to occasionally put things into their mouths, but if you think your child's mouthing behaviour is abnormal or excessive, you may want to discuss it with your doctor.

Final Comments

Following the suggestions listed above will not completely eliminate your child's exposure to lead. But these suggestions will help, and these are steps which you can take yourself, for your own family, without having to wait for anyone else.

We wish you success as you take action to reduce your family's exposure to lead.