

Improving Children's Environmental Health in the Child Care Setting

Date:	December 21, 2009
To:	Board of Health
From:	Medical Officer of Health
Wards:	All
Reference Number:	

SUMMARY

This report provides a summary of the key findings and exposure reduction practices identified in the attached report, *Childproofing for Environmental Health: An Examination of Food Related Exposures*. The focus in this report is on reducing children's food-related exposures in the child care setting where feasible and considering other factors such as hygiene, safety, nutrition and cost effectiveness. Chemical exposures related to water, food or food containers for children in child care centres may include lead, mercury, pesticides, dioxin-like compounds, bisphenol A, phthalates and perfluorinated compounds, although the degree of risk from several of these substances is not fully understood.

The review identifies several recognized best practices that can minimize food related exposures in a child care setting including: choosing fresh or frozen foods more often, reducing high fat meat and dairy (recognizing the nutritional need for full fat dairy for children under two years of age) and avoiding heating children's food or drinks in plastic containers. Eating low mercury fish and flushing drinking water to reduce lead are also important for reducing exposure. Toronto Children's Services has already implemented all of the recommended practices in the 57 child care centres that it directly operates.

TPH will work with Children's Services and other community partners to develop and implement an action plan focused on increasing awareness among the more than 900 other child care centres in Toronto licensed by the province. The key elements of the action plan include: recommending that all child care centres in Toronto fully implement the food-related best practices; developing a best practices toolkit; and dissemination of resources to increase awareness of children's environmental health issues at child-related

service agencies and centres operated in Toronto and, by extension, to the families that they serve.

Financial Impact

This report will have no financial impact beyond what is requested in the 2010 Operating Budget Submission.

DECISION HISTORY

At its meeting of September 26, 2005, the Board of Health (BOH) considered a report from the Medical Officer of Health entitled *Environmental Threats to Children: Understanding the Risks, Enabling Prevention*. This document reported on a review of environmental threats to the health of Toronto children and proposed actions to address these issues (see: <http://www.toronto.ca/legdocs/2005/>). At that time, the BOH endorsed the recommendations and directed the Medical Officer of Health to continue to improve public health programs and to minimize environmental threats to children in Toronto in various ways including: providing different educational resources and workshops on identifying and preventing environmental health risks to children, for child care professionals and parents.

At its meeting of April 16, 2007, after considering a report from the Medical Officer of Health on *The Regulation of Trans Fat in the Canadian Food Supply*, the BOH heard concerns regarding specific chemical substances, including bisphenol A and phthalates, which may pose risks to children's health from their transfer into or presence in food. The focus of the concerns was exposures that may be present at child care centres. The BOH requested that the Medical Officer of Health report back to them on "the top ten other food additives or container properties which may harm children's health at child care centres".

ISSUE BACKGROUND

TPH has a longstanding interest in addressing children's environmental health issues through research, policy, advocacy, education and outreach. TPH is applying the concept, developed with partners in the Canadian Partnership for Children's Health and Environment (CPCHE), of "childproofing for environmental health" in its health promotion work. Child care providers and operators have been a key group participating in CPCHE's multi-year outreach work. TPH has supported CPCHE work whenever possible and this report will contribute to the work by providing a synopsis of the health evidence regarding both risk and exposure reduction practices related to food contaminants.

Since 2007, Children's Services has been working with TPH to address food-related exposures and other children's environmental health issues in the child care setting.

This report was prepared in consultation with Children's Services.

COMMENTS

While it is agreed that food can be an important source of exposure to some contaminants for children, in 1998, Health Canada stated that Canadian dietary surveys indicated exposures to contaminants through food are generally below guideline limits.¹ However, in the last ten years concerns have emerged about other priority environmental chemicals for which recent science indicates exposures for children, including through food, are of concern. The environmental sources of exposure to these contaminants are through many potential pathways, but may be through air, water, soil, dust, consumer products or food.

Children are exposed to environmental contaminants more often and in relatively larger amounts compared to adults. Because of their smaller body mass, children's intake of contaminants from inhalation, ingestion and absorption through the skin is proportionately greater compared to adults.^{2 3 4 5} For example, infants consume nearly double the amount of water (per unit of body weight per day) and young children (ages 3 to 5 years) consume about 4.5 times the amount of certain fruits compared to adults.^{2 4} As a result, the intake of contaminants from various foods and water can be greater for children than it is for adults.

The attached report, *Childproofing for Environmental Health: An Examination of Food Related Exposures*, discusses exposures that are related to food or water, or from food containers or packaging. The report discusses lead, mercury, pesticides, dioxin-like compounds, bisphenol A (BPA), phthalates, polybrominated diphenyl ethers (PBDEs) (or flame retardants) and perfluorinated compounds (PFCs). It describes what is known about the potential exposure and health effects from each substance, or category of substances. The list of substances reviewed was informed by current research through TPH's ongoing work to reduce children's exposure from all sources, not only food. Several criteria were used to determine the list of substances examined: evidence for widespread exposure in humans; differential vulnerability or exposure for children compared to adults; and the potential for effects that are serious and irreversible (e.g. asthma, cancer, reproductive or neurodevelopmental impacts). In all cases, food or water are known exposure pathways. In addition, the Government of Canada has included these chemicals among a list of "substances of interest" which are viewed as priorities for risk assessment and appropriate controls under the Chemicals Management Plan.⁶

This review of the evidence for exposure and health impacts indicates that scientific knowledge for individual substances is highly variable. The effects on the developing child from some substances, such as lead and mercury, are well known. Pesticide exposure from home pest control is also known to be associated with health impacts in young children. Effects from dioxin and dioxin-like compounds are also well studied in people (adults and children), often in those who had high exposures. While food is the most common source, the levels of dioxin-like compounds in food have declined in the last couple of decades. Health effects from substances like BPA, PBDEs, phthalates and PFCs are known only or mainly from animal studies. While studies of effects in humans are limited, there is concern because exposure studies indicate that most people carry traces of these compounds in their bodies beginning at an early stage of life. There is also concern

regarding the effects on living organisms or the environment from these widespread contaminants.

The reasons for contaminants being present in food differ depending on the specific substance. Some persistent substances, for example, dioxin-like compounds or lead, are present in food due to historical environmental contamination. Substances such as phthalates or PFCs may be found in food because of current releases to the environment. In the case of these widespread environmental contaminants, the ability to reduce children's exposure through dietary choices differs depending on the nature of the substance and whether a specific dietary source can be identified. Food containers, food processing practices, packaging and cookware may also contribute in varying degrees to the presence of these substances in food. In some cases, such as for BPA and PFCs, not all the sources for children's exposures are known, although food is presumed to be a main source. Food exposures to pesticides are comparatively much lower than the exposures that are linked to health effects in children such as parental occupational or household uses. The following section looks at where action can and has been taken to reduce children's exposures to food contaminants in child care centres.

Recommendations for Reducing Food-Related Exposures

Reducing food-related exposure to contaminants is a complex and challenging issue. Actual exposure data for children attending child care centres in Toronto is not available and it is neither practical nor feasible to gather such data to inform specific recommended actions. As a result, TPH is recommending a best practices approach to help ensure that children's exposures to contaminants through diet remain low. The recommended exposure reduction practices specific to each chemical reviewed are outlined in Table 1. Additional detailed review information, together with the rationale for these best practices, is found in the attached report, *Childproofing for Environmental Health: An Examination of Food Related Exposures*.

In formulating this set of recommended practices, TPH considered the severity of the possible health concerns, the potential for exposures in a child care setting, and the feasibility and opportunities to reduce those exposures through reasonable and sustainable actions. The recommended practices also balance nutrition and health benefits against any potential risks. These practices were developed in consultation with Children's Services.

This review identifies a number of best practices, including several recommendations from *Eating Well with Canada's Food Guide* that can minimize potential risks from food- or food-container related exposures in a child care setting. These include: avoiding processed foods of low nutritional quality; reducing overall consumption of high fat meat and dairy (recognizing the nutritional need for full fat dairy⁷ for children under two years of age and the nutrition benefits of higher fat fish such as salmon); using cooking methods that reduce saturated fat; serving fresh or frozen foods when feasible; and, avoiding heating food or drink in plastic containers. Existing TPH messages about eating low mercury fish and flushing drinking water to reduce lead are also important for reducing exposure.

Table 1. Food or Water Exposure Reduction Practices for Chemicals of Interest

Substance(s)	Recommended Practices
Lead in drinking water	<p>Follow Ministry of Environment requirement for drinking water for school, private schools and day nurseries including daily flushing if all or part of the plumbing that serves the building was installed before January 1, 1990 and drinking water testing at least once each year for all such facilities (See: http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_070243_e.htm)</p> <p>In addition, if the child care centre is situated in a <u>house</u> built before the mid-1950s and the lead service line has not been replaced, filtered tap water should be used to prepare artificial baby milk (i.e. infant formula) and when preparing drinks for children under 6 years of age (See TPH 2009 Lead in Drinking Water fact sheet http://www.toronto.ca/health/lead/drinking_water.htm)</p>
Mercury in fish	<p>Follow advice for children in TPH's <i>Guide to Eating Fish for Women, Children and Families</i> including:</p> <ul style="list-style-type: none"> • Choose low mercury, high omega-3 fat fish • Avoid high mercury fish • Choose light over white canned tuna • Choose a variety of fish species
Bisphenol A (BPA)	<p>Choose fresh or frozen foods whenever possible</p> <p>Avoid microwaving/heating food or beverages in plastic containers</p> <p>Prepare infant formula with boiling water and allow to cool before adding to plastic bottles</p> <p>If using plastic bottles to store breast milk or infant formula, re-warm using warm water rather than the microwave</p>
Pesticides	<p>Where appropriate wash (or peel/trim) fruits and vegetables before giving to children</p> <p>Integrate some organic and choose locally or domestically grown produce when available or affordable</p>
Perfluorinated Compounds	Non-stick coated pans should not be used on high heat (>350°C)
Pesticides Dioxin-like Compounds Phthalates	<p>Follow recommendations in <i>Eating Well With Canada's Food Guide</i> for:</p> <ul style="list-style-type: none"> • Number of servings of a variety of fruits and vegetables • Number of servings for lean meat and meat alternatives, and dairy • Reducing high fat meat and dairy recognizing the higher fat needs of children under age 2; trimming fat from meat and fish • Cooking using methods that reduce saturated fat

To date, the Children's Services Division has already implemented all of the recommended practices including routine testing of drinking water and more frequent flushing for lead, a shift to serving fish that are low mercury and avoiding the heating of plastic baby bottles when preparing or warming infant formula or milk.

Childproofing for Environmental Health: The Broader Picture

In addition to food-related chemical exposures, other environmental exposures may exist in children's daily lives. For example, lead from old paint, pesticides from indoor use and flame retardants or PFCs from consumer products, end up in indoor dust which is an

important exposure pathway for toddlers and young children. Regular hand washing (with plain soap), wet dusting and a “shoes off” policy in playrooms where children are crawling on the floor can reduce exposure to those substances which may be high in indoor dust.

There are a number of resources that are designed to bring awareness to the general public and to child care and other service providers. Key examples of these include:

- The *Hidden Exposures, Reproduction and Pregnancy* fact sheet series for prenatal educators to help pregnant women and families identify and prevent environmental exposures, developed by the South Riverdale Community Health Centre in collaboration with TPH and the Environmental Health Clinic of Women’s College Hospital. TPH has recently updated this fact sheet series and added information on ways to reduce children’s exposure.
- The *Toronto Red Flags Guide*, a health promotion reference guide for people who work with young children and families, incorporates information on environmental exposures of concern to young children during development.
- The 2005 *Playing it Safe, Childproofing for Environmental Health* brochure, developed by the Canadian Partnership for Children’s Health and the Environment (CPCHE). Since 2005, at least 150,000 copies of this brochure have been distributed by TPH through child care centres across the City and through local school boards to parents registering children into kindergarten.
- The 2006 *Playing it Safe: Service Provider Strategies to Reduce Environmental Risks to Preconception, Prenatal and Child Health* manual, developed by CPCHE partners and Best Start, is enhancing the ability of service providers, including child care operators and providers, to address children’s environmental health issues in Canada.
- The 2009 *Clean Air Checklist*, a tool with tips related to indoor air quality in schools developed by Maria Miller with support from Ontario Healthy Schools Coalition and South Riverdale Community Health Centre and designed by the Windsor-Essex County Health Unit.
- CPCHE’s recently released *Advancing Environmental Health in Child Care Settings*, a checklist and guide that will equip both public health inspectors and child care practitioners with practical exposure reduction and prevention information relevant to their roles in child care centres.⁸ This resource is a product of the Public Health Inspectors Project led by the Ontario Public Health Association in collaboration with the Association of Supervisors of Public Health Inspectors of Ontario and the Canadian Institute of Public Health Inspectors Ontario Branch.⁹
- A number of key websites also provide links to many other resources such as Toronto Public Health’s “Healthy People, Healthy Environment” web pages (www.toronto.ca/health), the Canadian Partnership for Children’s Health and the Environment website (www.healthyenvironmentforkids.ca) and Best Start: Ontario’s Maternal Newborn and Early Child Development Resource Centre (<http://www.beststart.org/>).

Next Steps

TPH and Children's Services are committed to continue working together on the issues related to children's environmental health in a strategic and practical way. This report will be tabled at a future meeting of the Child Care Advisory Committee, to be scheduled in consultation with Children's Services. TPH staff will provide an overview of issues and resources to the committee at that time.

TPH, in consultation with Children's Services, will continue to increase awareness among all child care providers in Toronto about ways to reduce food-related chemical exposures and to promote other environmental health childproofing approaches. This work will also draw input from other community partners and experts as needed. An action plan will include:

- Recommending that all child care centres in Toronto fully implement the food-related best practices;
- Work with Children's Services to develop a best practices toolkit including resources and training materials specific to the child care sector, such as the *Advancing Environmental Health in Child Care Settings* checklist and the food-related practices, for dissemination in all Toronto child care centres (numbering over 900);
- Broader dissemination of resources to increase awareness of children's environmental health issues at all child care and child-related service agencies and centres operated in Toronto and, by extension, to the families that they serve.

With these actions, TPH and Children's Services will continue to support improved practice with respect to children's environmental health in the child care setting and among families in Toronto.

Finally, recognizing that awareness and action by parents and service providers are not always adequate to reduce exposure to some of the food-related contaminants discussed, TPH will continue to identify opportunities to call for specific policy action and reform by other levels of government as appropriate so as to enhance protection of children's health from environmental threats in Canada.

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SIGNATURE

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ATTACHMENTS

Attachment 1: Childproofing for Environmental Health: An Examination of Food Related Exposures (December 2009)

REFERENCES

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