

6. Conclusions

Toronto's children, like other children in Canada, are at risk from environmental threats. Children, but particularly the developing fetus and infants up to age three years, are more exposed and more vulnerable than adults to environmental contaminants in air, food, water, soil, dust and in consumer products. The early stages of life represent critical periods where exposure can result in delayed, permanent or lifelong health impacts. Children's lungs and brains are particularly susceptible to long-term impact from environmental exposures because of the lengthy period of development they undergo.

Some children in Toronto and elsewhere are at greater risk than others from environmental threats. Poverty, a known risk factor for poor health overall, heightens both susceptibility and exposure to environmental contaminants. The disproportionately higher rates of child poverty in Toronto compared to neighbouring regions reinforces the need to continue efforts to address child poverty in this city.

That children have greater vulnerability to some substances such as lead, methylmercury and PCBs was learned following poisoning incidents where signs of toxicity were obvious. More recently however, research has indicated that although less overt and often more difficult to detect, many health impacts of concern can result from low-level exposures to these and other toxicants. Increased risks for a variety of different health outcomes such as asthma and other respiratory conditions, neurodevelopmental delays and impairment, cancer, immune system effects and reproductive and developmental effects have been associated with exposure to various environmental contaminants. Data on many of these diseases and conditions among children in Toronto, and indeed in Canada, are notably limited.

There is concern that, while chemicals are tested for their effects in isolation by and large, a multiplicity of exposures occurs over a child's lifetime. Epidemiological data and animal studies implicate many environmental exposures with the health concerns identified. Biomonitoring data indicate that semen, follicular and amniotic fluids, cord blood, meconium (newborn stool), blood, and urine, bear evidence of the traces of *in utero* or lifetime exposure to environmental contaminants. Heavy metals such as lead and mercury, indoor and outdoor air pollutants, some pesticides, organic solvents, and persistent organic pollutants (POPs) such as dioxins, PCBs and PBDEs and phthalates, have all been found in the bodies of children and adults in places where biological testing has been carried out. The long-term impact of these measured exposures, either individually or in mixtures is not currently known.

The good news is that exposure reduction at home and in school and child care settings is helpful in protecting children. Parents and caregivers can make a difference with their practices and with increased awareness. Toronto parents are already quite engaged, aware and taking practical steps to protect their children in and around the home. There is a solid foundation upon which to build and enhance Toronto Public Health's work to protect children in this city from environmental threats. More can be done and the "childproofing tips" found in the new resources from the Canadian Partnership for Children's Health and Environment (CPCHE) provide guidance to parents, caregivers and others that have responsibility for child health and well-being.

Some progress has occurred in terms of ever expanding research and revised federal and provincial regulatory approaches to take children's health into account. However, much remains to be done at all levels of government and within communities. Priorities for action are guided by the need to address exposure risks that are: a) preventable; b) have the potential to affect large numbers of children, including children whose health status is compromised by other circumstances such as poverty; and c) associated with serious or irreversible health effects or with long-term consequences. Six priority areas for actions are recommended to gather momentum on protecting Canadian children from environmental threats:

1. There is an urgent need for strong political leadership and clear accountability and resources for children's environmental health federally and provincially. There must be greater integration of activities across departments where policies and programs can minimize exposure to environmental hazards. Specifically, TPH and its CPCHE partners are calling for establishment of a Children's Environmental Health Program within Health Canada, modeled after the US EPA's Office of Child Health Protection. This program should oversee and coordinate federal resources and initiatives (such as a national agenda for children's environmental health). It should also propose new policies and regulations, support research on children's environmental health (for example, by establishing national Centres of Excellence) and support local and community action to protect children from environmental threats. It would serve an important outreach function by acting as a central hub for translating and transferring knowledge that facilitates broader protective action for children. In addition, it is recommended that the Premier of Ontario create a new Children's Environmental Health Initiative to strengthen provincial legislation and regulations, establish comprehensive surveillance programs to better understand exposure trends and health risks, and expand public education and outreach. This is required to complement and amplify the effectiveness of federal activities.

2. There is an overall need to enhance research into environmental threats to children's health in Canada. A Canadian arm of the National Children's Study, a long-term cohort study already underway in the US, would gather valuable data and benefit from the collaboration with US researchers. This effort to study and understand the long-term impacts of the environment on the health of a representative cohort of Canadian children is a unique opportunity and should be supported by the Federal government. The Federal government must also, through agencies such as the Canadian Institutes of Health Research support independent, investigator-driven research in Canada by establishing a separate research institute or other integrating mechanism devoted to funding research on the impacts of the physical environment on children's health. Particularly lacking is research to better understand the types of exposures affecting brain and nervous system development and the long-term impact of such exposures. Of relevance to children in Toronto is a need for research focussed on how other factors, such as poverty, interact to heighten susceptibility and exposure to environmental contaminants that are developmental neurotoxins. There is also a need for information on the prevalence and trends in neurodevelopmental and neurobehavioural outcomes among children in Canada.
3. There is an urgent need to improve surveillance of exposures and health impacts of Canadian children. Key is the recommendation that the Federal government support a national biomonitoring program, similar to that conducted regularly in the US by the Centers for Disease Control and Prevention (US CDC). These data would provide a baseline of Canadian information to better understand the nature of children's exposure, help identify subpopulations with elevated exposures and, if conducted over the long-term, provide the ability to track trends in exposure. Unfortunately, current funding for the upcoming Canada Health Measures Survey, a one-time survey, will allow analysis of only a handful of contaminants. Research and surveillance data are also required on the prevalence and trends in environmentally-linked health outcomes, particularly, neurodevelopmental and neurobehavioural outcomes among children in Canada.
4. There is ongoing need for legislative reform to better account for children's vulnerabilities. Risks to prenatal and child health must be addressed proactively rather than reactively. There is also a particular need for a precautionary approach to specific federal legislation. The revised Pest Control Products Act, which received royal assent in 2002, serves as a positive example, but government proclamation of the new Pest Control Products Act needs to be expedited. Specific legislation identified as needing greater precaution and child-protective measures include the 36-

year old Hazardous Products Act (HPA) and the Canadian Environmental Protection Act (CEPA). A revised Hazardous Products Act should ensure that children's exposures to substances in consumer products is prevented before these substances are allowed into commerce. Revisions to the Hazardous Products Act should also improve public disclosure requirements.

5. Public Health programming and education can also be enhanced to better address environmental threats to children's health. There is a need to increase funding or make strategic investments to expand the mandates of appropriate programs and standards such that they better address preconception, prenatal and children's environmental health. The Mandatory Health Programs and Services Guidelines of the Ontario Ministry of Health and Long-term Care need revisions to include Environmental Health as a separate, expanded program area that replaces the current Health Hazard Investigation Program. In addition, existing programs such as Child Health and Reproductive Health should be revised to specifically address environmental threats to preconception, prenatal and children's health.
6. Finally, school boards in Toronto, have made modest progress in addressing environmental threats to children. They would make much greater gains by committing to a process of detailed evaluation and prioritization of policies, procedures and specific actions that seek to improve environmental conditions in schools. To address indoor air quality, one of the most important and challenging children's environmental health issues facing schools, it is recommended that school boards make strategic investments in the maintenance, renovation or reconstruction of Toronto schools taking into account results of their evaluations and prioritization exercises.

Toronto Public Health is committed to continuing to identify opportunities to integrate supportive, preventive practices and increase awareness of prenatal and children's environmental health issues in its program work with parents-to-be, pregnant women, infants, children and families. Toronto Public Health is also committed to working in partnership with City partners, school boards, other health units and particularly, with CPCHE partners, to increase awareness about measures to protect children from environmental threats.