
CHAPTER SEVEN – SUMMARY AND RECOMMENDATIONS

7.1 Summary of Key Findings

Children are at Risk

- The health of Toronto’s children, like all children in Canada, is at risk from environmental contaminants. Children in Toronto are disproportionately affected by poverty, compared to children living in neighbouring regions in the GTA. Poverty is a known risk factor for poor health, greater susceptibility and greater exposure to environmental contaminants;
- The developing fetus, infants and young children up to age three can experience greater exposure and greater vulnerability than adults to substances in the environment. Multiple exposures of uncertain risk occur during pregnancy and continue throughout the course of child development;
- Scientific evidence exists of associations between environmental hazards and asthma, cancer, learning, behaviour and developmental effects, low birth weight and birth defects. Emerging evidence exists that raises concerns about additional, equally serious, health effects such as impaired functioning of the immune system and interference with the hormones of the endocrine system. Hundreds of environmental contaminants are suspected of contributing to serious health outcomes in children although only a small number of them have been fully evaluated for their effects on prenatal and child development; and
- In Toronto, asthma, learning disabilities, cancer, low birth weight and birth defects occur in the child population at rates that are similar to or in some cases, higher than, rates that occur among children in the rest of Canada and in other industrialized countries. Understanding the role, if any, of environmental contaminants in such health outcomes is extremely complex. Not only is the information base about environmental exposures limited, but it is well-established that multiple determinants of health (including biological, social and physical) and multiple factors within these determinants, influence each of the health outcomes of concern mentioned here.

Health Trends Across the Population

- Although infant mortality and early childhood diseases have dropped significantly and life expectancy has substantially increased in the last century, some chronic diseases and other debilitating conditions, including several having suspected or known associations with environmental exposures, are on the rise among children;
- Cancer rates have been rising among children in the US and countries in Europe for many years but such increases are not apparent in children in Canada. Although still rare, cancer remains the leading cause of illness-related death for children in Canada older than one year of age. Moreover, cancer rates among young adults (aged 20 - 44 years) in Canada have increased gradually since the 1970s. For certain cancers, such as thyroid and testicular cancer in men, brain cancer in women and non-Hodgkin's lymphoma in both men and women, incidence rates increased by more than two percent per year or just under 20 percent per decade. Causes for these increases are largely unknown but given the long latency period for most carcinogens, early childhood, prenatal or parental preconception environmental exposures, especially during windows of vulnerability, could be contributing factors;
- Two health outcomes are observable in large numbers of children: respiratory conditions, particularly asthma, and a range of conditions related to cognitive functioning and behaviour. Substantial evidence demonstrates associations between respiratory effects, including asthma, and indoor and outdoor air pollutants. Evidence is increasing of many other serious effects from air pollution in the developing fetus and child;
- Among children in Canada, 12% have asthma and Toronto physicians report treating children for acute and chronic respiratory symptoms more than any other health complaint. Poorer children in Toronto may be particularly vulnerable to air pollution as hospitalization rates for those living in the poorest areas of the City are nearly twice (93% greater) the respiratory hospitalization rate for children living the highest income areas, a trend that is consistent with recognized links between income and effects from outdoor air pollution;
- Effects on the developing nervous system are well documented for a small number of well-studied substances including lead, mercury, dioxins, PCBs and some solvents. Although these contaminants can

also adversely affect several organ systems in the body, it is common for effects on the nervous system to be observed at lower doses than are required to affect other body organs. Concern is increasing about nervous system effects of environmental tobacco smoke (ETS), the organophosphate insecticides and polyhalogenated compounds such as the flame retardants, PBDEs;

- The prevalence of learning disabilities, AD/HD, autism and other neurobehavioural deficits in Toronto children appear similar to their prevalence in the US, Canada and Ontario. Although data are limited, Toronto appears to be on the higher end of the scale with about 13% of enrolled elementary and secondary students (in the Toronto District School Board) with at least one or more learning or behavioural exceptionalities of concern;
- The apparent increase in recent years in North American children of various neurocognitive and neurobehavioural conditions may be influenced by more aggressive diagnostic practices. Nonetheless, the burden of disabling conditions is high enough for some US-based physicians to refer to the problem as having reached epidemic proportions; and
- Research into the economic burden of the diseases and disorders of concern with respect to toxic exposures suggests that exposure prevention could result in substantial savings in health care, human productivity and myriad social costs.

Understanding Exposure

- Measurement of exposure is limited. Many of the substances of greatest concern are associated with multiple effects and multiple pathways of exposure including during critical windows of vulnerability throughout prenatal development and the many stages of childhood;
- Biomonitoring data collected from the US population show that people of all ages have measurable body burdens of many contaminants, or their metabolites, at levels that in most cases are of uncertain health significance;
- Monitoring of pesticide residues on food in Canada paints a picture of fairly strong regulatory compliance. However, at the same time, US-

based biomonitoring data demonstrate that pesticides and their metabolites are extremely common in people's bodies. Home and garden use of pesticides creates greater exposure risks for children than through pesticide residues on foods;

- Indoor air quality is a largely unregulated source of exposure to a variety of contaminants. Exposure to various indoor air contaminants is believed to increase the risks of developing asthma or other respiratory irritation and health problems. Children's exposures in schools and child care facilities are as much a part of the indoor exposure picture as occurs in the home environment. In addition, contaminant levels in indoor dust are of increasing concern and present a significant exposure pathway for children;
- Exposures occur through many media with some far more significant than others. As a result, there is a need for good public educational materials that raise awareness about where risks are greatest and the necessary precautionary response and practices. This includes highlighting how choices, whether in foods, water source, consumer products and related behaviours, can influence exposure, positively or negatively; and
- The toxicity of certain persistent organic pollutants (POPs) is well understood. This knowledge can be extended to those POPs of emerging concern. PBDEs in particular appear to require the same response as has occurred in the past with similarly persistent and potentially highly toxic substances. The rapid build-up of persistent substances in the environment, and in the case of PBDEs, in the indoor environment and in breast milk, necessitates swift regulation, industry withdrawals and phase-out.

What Parents in Toronto Know About Environmental Risks to Children

- Survey results show that Toronto parents have high awareness of the degree of harm to children's health for certain well-known exposures (e.g. air pollution, water quality, pesticides) and want the City to take action on these exposures, through policies, by-laws, other measures that protect environmental quality, or through education activities;
- Most parents or caregivers are already practicing simple measures to reduce their child's exposures such as removing shoes at the door,

frequent cleaning of areas where children often play, encouraging handwashing, providing smoke-free homes, minimizing pesticide use and using sunscreen to protect from ultraviolet radiation;

- The survey results also indicate areas requiring further public education to extend protective, cautionary behaviours to all children not just to infants and toddlers, as well as encouraging protective behaviours among all groups of parents and child caregivers; and
- The survey also highlights that resources should be developed with particular attention to literacy levels, format and medium and by ensuring content that fills information gaps. The results should allow for risk communication and the preparation of children's environmental health resources and programs that are relevant, appropriate and tailored to the needs of Toronto parents.

The Policy Response

- For most environmental exposures, control measures are often delayed or opposed until solid proof of harm is obtained. This approach will continue to place the developing fetus and child at unnecessary and preventable risk;
- Some progress has occurred in terms of revising federal and provincial regulatory approaches to take children's health into account. These new approaches must be applied to the enormous number of substances in commercial use, or that result from industrial emissions, that have never been fully evaluated for toxicity during prenatal and childhood life stages;
- Advocates for changing traditional approaches to environmental hazards call for a precautionary approach. This approach speaks directly to the reality of never having absolutely definitive or conclusive evidence of harm. It denotes a duty, on all members of society, to prevent harm, when it is within our power to do so, even when the evidence is uncertain or not readily attainable;
- There is an urgent need for strong political leadership and clear accountability and resources for children's environmental health at both the federal and provincial level. There must be greater integration across departments where policies and programs can minimize exposure to environmental hazards. At the provincial level,

particular attention needs to be directed at coordinating the activities of the Ministries of the Environment, Health and Long-Term Care, and Children and Youth services into a comprehensive cross-cutting provincial program.

- Some municipalities have exercised leadership in applying precautionary action to recognized risks through the passage of progressive bylaws and other actions. Toronto has been in the forefront of this activity as have Toronto school boards. However, both the municipal ability and that of school boards to apply progressive environmental controls is limited by funding constraints, their respective arenas of policy and regulatory authority and influence, and the magnitude of the issues needing to be confronted.

7.2 Recommendations – Strategic Directions for Future Action

The public health mandate of disease prevention and health promotion is fundamentally one of applying a precautionary approach. The following recommendations encompass measures that will assist the City of Toronto in applying a precautionary approach to reducing and preventing children's exposure to harmful substances in the environment. 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.

The recommendations outline measures that will enhance protection of child health from environmental threats in Canada and that will ultimately assist the City of Toronto in reducing and preventing exposure to harmful environmental substances among Toronto's children. The strategic actions recommended address the gaps that identified in this report in the areas of policy, research and education.

7.2.1 Policy

- (1) It is recommended that the federal Minister of Health and the Premier of Ontario take a leadership role in protecting children from environmental threats to health by:

-
- (a) At the federal level, establishing a comprehensive Children's Environmental Health Program to oversee federal resources, research and surveillance initiatives, and to propose new policies and regulations; and
 - (b) At the provincial level, creating 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.
- (2) It is recommended that the federal Minister of Health:
- (a) Require that testing for developmental neurotoxicity be included within the mandatory, core testing requirements for evaluations of chemical substances, including pesticides;
 - (b) Revise the Hazardous Products Act and associated regulations to incorporate a similar level of precautionary and mandatory child-protective measures as found in the revised Pest Control Products Act (PCPA) such that:
 - (i) Children's exposure to toxic substances used in consumer products is prevented; and
 - (ii) Requirements for labeling and disclosure of ingredients in consumer products are improved.
- (3) It is recommended that the federal Ministers of Environment and Health:
- (a) Support the addition of newly identified persistent toxic substances including octa and penta forms of the polybrominated diphenyl ethers (PBDEs), perfluorooctane sulfonate (PFOS) and its salt, lindane, hexachlorobutadiene, polychlorinated naphthalenes and short-chained chlorinated paraffins, to the list of substances targeted for global phase out and ban under the Stockholm Convention on Persistent Organic Pollutants;
 - (b) Strengthen Canada's National Implementation Plan under the Stockholm Convention through a commitment to identify, on a separate list, all substances on the Domestic Substances List that meet the Convention criteria of persistence or bioaccumulation and inherent toxicity and, nominate these for consideration by the POPs Review Committee established under the Stockholm Convention;
-

-
- (c) Ensure that such substances are made subject to control under CEPA;
 - (d) Ensure that the forthcoming review of the *Canadian Environmental Protection Act* incorporate legislative amendments that provide a similar level of precautionary and mandatory child-protective measures as found in the revised *Pest Control Products Act*; and
 - (e) Ensure final proclamation of the Pest Control Products Act (PCPA) by the end of 2005.
- (4) It is recommended that the Minister of Health and Long Term Care:
- (a) Revise the Mandatory Health Programs and Services Guidelines to include Environmental Health as a separate, expanded program area that replaces the Health Hazard Investigation Program; and
 - (b) Ensure that there is enhancement of other Mandatory Health Programs, such as Child Health and Reproductive Health, to include strategies for protecting preconception, prenatal and children's health from environmental threats.
- (5) It is recommended that the Toronto District School Board and the Toronto Catholic District School Board, Conseil scolaire de district catholique and Conseil scolaire de district du Centre-Sud-Ouest and, where appropriate, independent/private schools in the City:
- (a) Commit to a process of detailed evaluation and prioritization of policies, procedures and pilot projects that address indoor and outdoor environmental exposure risks in the school environment;
 - (b) Choose strategic investments when applying the new provincial monies under the Good Places to Learn Initiative to the maintenance, renovation or reconstruction of Toronto's schools;
 - (i) to address indoor air quality problems; and
 - (ii) achieve important benefits such as energy efficiency gains and provision of shade in school grounds; and
 - (c) Continue to work in partnership with Toronto Public Health to increase awareness about measures to protect children from environmental exposure risks in the school environment.
-

7.2.2 Research

- (6) It is recommended that the federal Minister of Health:
- (a) Fund a Canadian arm of the U.S. National Longitudinal Children's Study that will assess exposures and health of a cohort of children from birth through to the end of adolescence as a way to improve research and surveillance on environmental threats to children's health in Canada;
 - (b) Request the Canadian Institutes of Health Research (CIHR) to support independent research on environmental threats to children's health in Canada by:
 - (i) Consideration of a separate research institute or integrating mechanism devoted to children's environmental health; and
 - (ii) Placing high priority on funding research into environmental impacts on brain development, including longitudinal studies; and
 - (c) In collaboration with appropriate federal government departments (such as, Health Canada, Statistics Canada and Environment Canada), ensure that:
 - (i) The biological sampling component of the Canada Health Measures Survey is implemented;
 - (ii) The biological samples are tested for full range of contaminants proposed by Statistics Canada; and
 - (iii) Sampling is further expanded into an ongoing, comprehensive biomonitoring program mirroring that conducted by the US Centers of Disease Control and Prevention.
 - (d) Working with the Ontario Minister of Health and Long-Term Care, ensure that targeted testing for blood lead among children ages 0 to 10 is implemented; and
 - (e) Request the Public Health Agency of Canada to expand the Canadian Integrated Public Health Surveillance Program (CIPHS) to include data collection and analysis of trends in neurodevelopmental and neurobehavioural outcomes in Canadian children.

-
- (7) It is recommended that the Ontario Minister of Children and Youth Services, through the Best Start Plan, explore the possibility that the information gathered from the enhanced developmental assessments of every 18-month old child in Ontario be centrally collected and analysed for trends in developmental abilities as an additional way to improve surveillance of children's exposures and health impacts.

7.2.3 Education

- (8) It is recommended that the Medical Officer of Health:
- (a) Continue to pursue opportunities within existing Toronto Public Health programs for integrating environmental awareness and supportive, preventive practices for parents-to-be, pregnant and nursing women, infants and children with particular emphasis on those with increased risk;
 - (b) Continuing to identify opportunities within the City of Toronto to disseminate educational resources, such as through Parks, Forestry and Recreation, Toronto Public Libraries and Children's Services; and
 - (c) Continue to work with the Canadian Partnership for Children's Health and Environment to:
 - (i) Create, as needed, new educational resources directed to parents, caregivers, and practitioners in different settings such as child care and recreational facilities, that identify and provide preventive advice on environmental threats to children's health; and
 - (ii) Disseminate educational resources through key organizations involved in promoting the health of children including school-based parent groups, environmental and community groups and health-care practitioners and organizations, particularly Community Health Centres.