

## **Reducing Pesticide Health Risks**

February 10, 2019

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### **1. Who is the Canadian Association of Physicians for the Environment, and what is your interest in the City of Edmonton's review of its Integrated Pest Management (IPM) policy?**

Founded in 1993, the Canadian Association of Physicians for the Environment (CAPE) is a national non-profit organization directed by doctors who are committed to bettering human health by protecting the environment. CAPE advances healthy public policies related to pesticides, active transportation, climate change and air pollution, among other issues. CAPE is an affiliated member of the Canadian Medical Association.

From its inception, the Association has worked to reduce human exposure to pesticides as a public health goal. We supported municipal and provincial legislation restricting the non-essential uses of toxic pesticides in Ontario, New Brunswick, Newfoundland and Labrador, and Manitoba. In 2016, CAPE published a policy report<sup>1</sup> outlining municipal and provincial restrictions on non-essential uses of pesticides across Canada. This was followed in 2018 by a case study report<sup>2</sup> that examined how a number of Canadian municipalities are successfully delivering weed control programs under bans on the non-essential uses of toxic pesticides. CAPE has also commissioned public opinion research on pesticides in Manitoba, Alberta, and Newfoundland and Labrador.

In January 2018, we submitted a letter<sup>3</sup> to the City of Edmonton Audit Committee in response to the City Pesticide Use Audit report.<sup>4</sup> City administration and Councillors accepted the City Audit Department's recommendations<sup>5</sup> that IPM policies and procedures be updated and that pesticide use information be made available to the public in a timely manner. We welcome the opportunity to assist the City in this review.

### **2. From the perspective of a health organization, what are your general comments on Edmonton's IPM policy and the proposed updates?**

The City's current IPM policy,<sup>6</sup> now some 15 years old, includes commendable references to the adoption of best practices, the provision of notice to residents when pesticides are used, use of least toxic substances, buffer zones around day care centres and playgrounds, and annual reporting of pesticide use. Missing, however, is an explicit acknowledgement of human health risk associated with exposure to pesticides, with the result that the policy does not take adequate account of such risks.

Although a herbicide ban was passed in 2015, that policy includes a number of exemptions that have the effect of undermining the protection of human health. These exceptions allow for the use of toxic

pesticides on sports fields, in cemeteries, on golf courses and in high-profile parks, including green space around City Hall itself.

Recently proposed revisions to the City's IPM policy, as set out in the preambles to survey questions, are generally worthwhile. But the revised policy statements do not prioritize avoidance of health risks associated with human exposure to pesticides. At minimum, a principle to be added to Edmonton's IPM policy would express a commitment to eliminating human exposures resulting from non-essential uses of toxic pesticides.

We note that Edmonton City Council had earlier approved a strategic plan<sup>7</sup> to establish a vision for what the City will look like in the year 2040. A 10-year goal of that plan is to see Edmonton as "the nation's leader" in setting and achieving the highest standards of environmental sustainability. In 2019, there is still some distance to go in accomplishing this goal with respect to pesticide use by the City. CAPE notes that dozens of cities across Canada, operating under regulated prohibitions on non-essential uses of pesticides, are able to maintain priority green spaces in well-groomed, attractive and functional condition within available budgets without using the banned products.

While CAPE is choosing to avoid local controversies in Edmonton regarding disclosure of the use of chlorpyrifos for larval mosquito control, we do note: (a) there appears to be currently no mention of the use of chlorpyrifos for this purpose on the Mosquito Control pages of the City web site; and (b) concerns regarding adverse health impacts associated with exposure to chlorpyrifos (particularly with respect to children's brain development) have been sufficient to prompt regulatory responses<sup>8</sup> in the State of California. These concerns amply justify a precautionary policy to avoid the use of this chemical.

In sum, as Edmonton's IPM experience suggests, as long as toxic pesticides remain within reach, they will be used. Stronger safeguards are needed to regulate pest management decisions in Edmonton, so as to reduce health-harming risks to citizens of all ages who use public parks, sports fields and other municipal green spaces.

### **3. Why is CAPE concerned about human health effects of exposure to pesticides?**

CAPE's primary focus here is on protecting Edmonton residents from the health risks associated with exposure to toxic pesticides that are used within the City. As an organization concerned with environmental impacts on human health, CAPE wishes to highlight the pesticide health risks that are reported in a number of published systematic reviews of epidemiological studies. Epidemiology can be understood as the branch of medicine that investigates the prevalence and distribution of diseases in selected populations. We provide references to four systematic reviews<sup>9 10 11 12</sup> which, taken together, include more than 500 pesticide health studies.

This substantial body of research tells us that children are most at risk from exposure to pesticides. The dangers of exposure for children include increased risks of low birth weight and pre-term births in babies, deficits in cognitive and motor development, hormonal (endocrine) disruption, learning disabilities and other developmental deficits, birth defects such as cleft palate, and childhood cancers such as leukemia and brain cancer. Children's elevated risks reflect several factors: their relatively large body surface-area-to-weight ratio; their vulnerability during early stages of physical development and during periods of rapid growth; their long life expectancy (for problems to develop); the fact that they often play close to the ground on grass on residential lawns, in parks, at schools and on playgrounds; and their typical hand-to-mouth behavior (i.e., putting their hands and objects in their mouths on a

frequent basis). In many studies, the harmful effects noted in children were related to the exposure of their mothers during pregnancy or to children's exposure at a young age.

Human exposure to pesticides can occur through direct contact with skin (dermal absorption), through food and water (oral ingestion), or from breathing (inhalation). Exposure to a given pesticide may occur simultaneously through more than a single pathway. As well, people are typically exposed to other toxic substances (including other pesticides) at the same time. For some harms affecting children especially, there are critical windows of vulnerability — i.e. pre-conception, prenatal, or during infancy or childhood. During these vulnerable periods, even single, low-dose exposures may cause harm that may not occur at a later stage of development.

In adults, the range of range of harmful effects associated with exposure to pesticides includes increased risk for Parkinson's disease, asthma and obstructive lung disease, Amyotrophic Lateral Sclerosis (ALS), diabetes, and cancers such as non-Hodgkin lymphoma, leukemia and cutaneous melanoma, among other risks.

We note that when non-essential uses of toxic lawn and garden pesticides are the source of such exposures, these are preventable harms.

**4. The City of Edmonton states that it uses only pest control products that have been approved by Health Canada's Pest Management Regulatory Agency (PMRA). Why does CAPE believe that PMRA approval is not a sufficient assurance of pesticide safety?**

There are simply too many troubling gaps, flaws and weaknesses in Canada's pesticide regulatory process. In evaluating pesticides, the PMRA relies on industry-supplied studies that are too often neither independent nor peer-reviewed. Frequently, there are missing pieces in the data; for example, insufficient evidence on health impacts of chronic, low-dose exposure to pesticides. The evaluation system does not take adequate account of the real-world effects of pesticides on human populations. For example, risks from pesticide exposures through multiple pathways and risks from combined exposures to several chemicals simultaneously are not well addressed in the evaluation process.

Pesticide toxicity can be greatly increased when other chemicals are added to the main active ingredient in retail product formulations. These additives may include surfactants, solvents, preservatives and other product enhancers. Formulations can be many times more toxic than the main active ingredient alone.<sup>13</sup> However, PMRA evaluations are often carried out on just the active ingredient(s), and not on the formulated products that are actually sold and used. In such cases, the health risks associated with the use of formulated products may be seriously underestimated.

Further, although the federal Pest Control Products Act<sup>14</sup> requires the re-evaluation of registered pesticides after 15 years, the PMRA has admitted that it is far behind in conducting such reviews. There were some 125 re-evaluations of pesticides under way as of October 2018, and a further 145 due to launch in the next five years. The Agency acknowledges that it is not sufficiently resourced to carry out these reviews in a timely way. This means that products originally approved on the basis of decades-old studies can remain in use for extended periods of time without updated assessments of their health and environmental risks.

Because of gaps in data, the lack of independent peer review of industry-sponsored studies, questions about industry influence over the evidence used in evaluations, delays in the completion of pesticide re-

evaluations, and other critical deficiencies (such as the failure to test product formulations, not just active ingredients), CAPE observes that the PMRA's flawed and inadequate evaluation process is not reliably health-protective.

## 5. What would CAPE recommend to the City of Edmonton in light of these health concerns?

As the City's experience demonstrates, IPM on its own is clearly insufficient as a policy instrument to limit public health risks associated with pest control. Accordingly:

1. CAPE recommends that **the City of Edmonton, as a corporate entity, should formalize a policy to eliminate its own routine use of toxic pesticides in City-managed parks and green spaces and for larval mosquito control.** This step is needed, at minimum, to reduce the public health risks resulting from the City's own current pest control practices.
2. CAPE further believes that, in keeping with a strategic commitment to fostering livable communities, an important public health goal of Edmonton City Council should be the implementation of broader restrictions on non-essential uses of pesticides. Therefore, **CAPE urges the City of Edmonton to enact a bylaw restricting non-essential uses of toxic pesticides on residential and privately owned lawns and gardens as well as in City-managed green spaces,** drawing on successful pest control bylaws and regulations in other jurisdictions (e.g., Ontario, Manitoba, Vancouver, and many others). CAPE's recent study of municipal weed control found that such policies work well and are readily accepted by the community. At present, Alberta is one of only two provinces that do not have a provincial law or multiple municipal bylaws prohibiting the use of toxic pesticides for non-essential purposes.

CAPE notes that a 2016 public opinion poll,<sup>15</sup> conducted in Alberta for CAPE and Prevent Cancer Now, found that two-thirds of respondents were concerned that pesticides pose a threat to the health of children, and over 60 per cent supported a law to phase out the sale and use of toxic pesticides on lawns and gardens. Understandably, people want to live in healthy communities where they and their children are not exposed to avoidable pesticide health risks. More than 80 per cent of Canadians live in communities where bans on toxic pesticides are in effect.

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CAPE is pleased to assist the City of Edmonton in its reconsideration of pesticide use. The City has an opportunity at this time to take important steps to protect residents from unnecessary exposure to harmful pesticides.

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*The Canadian Association of Physicians for the Environment (CAPE)  
is the only doctor-directed national, non-profit organization in Canada dedicated to  
improving human health by protecting the environment.*

## Endnotes

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- <sup>1</sup> Canadian Association of Physicians for the Environment. 2016. "Cosmetic Pesticides – Provincial Policies and Municipal Bylaws: Lessons Learned and Best Practices." Prepared by Ian Arnold and Kim Perrotta. Retrieved from <https://cape.ca/wp-content/uploads/2018/04/Pesticides-Policy-Report-FINAL.pdf>
- <sup>2</sup> Canadian Association of Physicians for the Environment. 2018. "Municipal Weed Control: Lessons from Ground Zero." Prepared by Randall McQuaker and Kim Perrotta. Retrieved from <https://cape.ca/wp-content/uploads/2018/10/Municipal-Weed-Control-Report-October-11-2018-.pdf>
- <sup>3</sup> Canadian Association of Physicians for the Environment. 2018. Letter to Mayor Don Iveson, Chair, and members of the City of Edmonton Audit Committee. Retrieved from <https://cape.ca/wp-content/uploads/2018/03/1.Letter-to-Mayor-Don-Iveson-Chair-and-Members-of-the-City-of-Edmonton-Audit-Committee-Re-%E2%80%93-City-Pesticide-Use-Audit-17428-%E2%80%93-January-19-2018.pdf>
- <sup>4</sup> City of Edmonton, Office of the City Auditor. 2017. "City Pesticide Use Audit." (CR\_5313 – Attachment 1, November 14, 2017).
- <sup>5</sup> See "City Pesticide Use Audit" ref in Note 4 above, Executive Summary, p. i.
- <sup>6</sup> City of Edmonton. 2004. "City Policy: Integrated Pest Management." Retrieved from [https://www.edmonton.ca/city\\_government/documents/PoliciesDirectives/C501.pdf](https://www.edmonton.ca/city_government/documents/PoliciesDirectives/C501.pdf)
- <sup>7</sup> City of Edmonton. 2009 (updated in 2014). "City of Edmonton Strategic Plan: The Way Ahead." Retrieved from [https://www.edmonton.ca/city\\_government/documents/The\\_Way\\_Ahead\\_\(Final-Web\).pdf](https://www.edmonton.ca/city_government/documents/The_Way_Ahead_(Final-Web).pdf)
- <sup>8</sup> State of California, Department of Pesticide Regulation. 2018. "DPR Recommends Interim Restrictions on Use of Chlorpyrifos" (news release, November 15, 2018.) Retrieved from <https://www.cdpr.ca.gov/docs/pressrls/2018/111518.htm>
- <sup>9</sup> Bassil K, C Vakil, M Sanborn, DC Cole, JS Kaur, KJ Kerr. 2007. "Cancer Health Effects of Pesticides – Systematic Review." Canadian Family Physician. October 2007. 53 (10). Retrieved from <http://www.cfp.ca/content/53/10/1704.full>
- <sup>10</sup> Chief Public Health Office, Prince Edward Island (PEI). 2015. "Pesticides and Human Health." Prepared by Carolyn Sanford, DVM, PhD, David Sabapathy, MD, MBA, MSc, PEng, FRCPC, Heather Morrison, MD, MPhil, DPhil, CCDP(EM), and Katherine Gaudreau RN, BScN, MSc. Retrieved from [http://www.gov.pe.ca/photos/original/cphs\\_pesticipt1.pdf](http://www.gov.pe.ca/photos/original/cphs_pesticipt1.pdf)
- <sup>11</sup> Ontario College of Family Physicians (OCFP). 2012. "2012 Systematic Review of Pesticide Health Effects." Prepared by Marg Sanborn, MD, CCFP, FCFP, Kate Bassil, MSc, PhD, Cathy Vakil, MD, CCFP, FCFP, Kathleen Kerr, MD, MCFP, Dip. Env. Health, and Kelsey Ragan, MPH. Retrieved from <http://ocfp.on.ca/docs/pesticides-paper/2012-systematic-review-of-pesticide.pdf>
- <sup>12</sup> Sanborn M, Kerr KJ, Sanin LH, Cole DC, Bassil KL, Vakil C. 2007. "Non-cancer health effects of pesticides – Systematic review and implications for family doctors." Canadian Family Physician. October 2007. 53 (10). Retrieved from <http://www.cfp.ca/content/53/10/1712.full>
- <sup>13</sup> See, for example, Mesnage, Robin and Michael N. Antoniou. 2017. "Ignoring Adjuvant Toxicity Falsifies the Safety Profile of Commercial Pesticides." Frontiers in Public Health, 5 (361). Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5786549/>
- <sup>14</sup> Pest Control Products Act. 2002, current to November 20, 2018. See Section 16(2). Retrieved from <https://laws-lois.justice.gc.ca/eng/acts/P-9.01/page-3.html#docCont>
- <sup>15</sup> Canadian Association of Physicians for the Environment and Prevent Cancer Now. 2016. "Alberta Pesticide Survey Report." Prepared by Oraclepoll Research. Retrieved from <https://cape.ca/wp-content/uploads/2018/03/2.Alberta-Pesticide-Survey-Report-September-2016.pdf>