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Deputation of
Bill Jeffery, LLB,
Centre for Health Science and Law (CHSL)
to the Toronto Board of Health regarding the Toronto Public Health staff report,
Caffeinated Energy Drinks Technical Report on Public Health Concerns and Regulation in Canada,
March 20, 2017 at
Toronto City Hall

I am the Executive Director of the Centre for Health Science and Law (CHSL) which is the publisher of *Food for Life Report* both of which are headquartered in Ottawa. We educate the public about food and health and advocate stronger public health nutrition policies. CHSL does not accept funding from industry or government.

I am concerned about the adverse health effects of so-called caffeinated energy drinks and believe that federal and other levels of government are not doing enough to curb this risk. These drinks are in some respects, merely sugar water with added mildly addictive stimulants and, as such, provide no health benefits while contributing to dental carries and obesity.

However, I want to focus on the still poorly understood possibility that ingredients included in many or all so-called energy drinks pose a risk of severe acute harm to a small sub-population of people that are vulnerable to that risk, but who have no way of recognizing that vulnerability until they actually experience the adverse health events. Consider the following:

1. **Reports of suspected cardiac risk to teenagers exceed those of all over-the-counter medicines, combined:** According to reports from Health Canada's Adverse Reaction Database for children aged 12-18, energy drinks were suspected of causing more acute serious cardiovascular disorder events than all over-the-counter medicines combined. All other adverse reactions reported in the database related to prescription drugs. The database reported 260 serious adverse involving cardiac disorders in children aged 12-18 years during the period 2006-2016, nine of which involved energy drinks. Of the 260, 47 adverse reactions led to death of which 44 were suspected to be caused by prescription drugs, one in response to an over-the-counter medicine (an anti-histamine), and three in response to energy drinks. There were no non-fatal serious adverse cardiac disorder reactions attributed to OTC drugs.
2. **Energy drinks were suspected in 29 reports of serious adverse health effects:** According to Health Canada's Adverse Reaction Database, between January 1995 and December 2014 there were 29 reports of serious adverse reactions to energy drinks, including 3 deaths and a host of worrisome cardiac events (including stroke, heart attack, cardio-respiratory arrest, heart arrhythmia), as well as several seizures/convulsions and other brain-related impacts

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(e.g., delusions, amnesia, etc.). Health Canada defines a serious adverse reaction as a one that “requires in-patient hospitalization...causes congenital malformation, results in persistent or significant disability or incapacity, is life-threatening or results in death...” However, in its 2013 review of these adverse reactions, Health Canada surprisingly dismissed these reports and indicated, for example, that “2 deaths that were associated with energy drinks could not be assessed because of lack of information” but did not explain what efforts were made to find the information or the considerations in deciding to ignore such obviously very worrisome reports.

3. **Actual prevalence of adverse reactions to energy drinks is likely much higher than was publicly reported.** Databases that rely on voluntary reporting—such as poison control and adverse reaction databases are believed to grossly under-estimate health risks. For instance, a U.S.-based hospital emergency room surveillance system, “Drug Abuse Warning Network (DAWN), revealed a steep, 14-fold rise in emergency room visits during the years 2005-2011: from 1,494 visits in participating hospitals to 20,783.¹ This rise corresponds approximately to the rise in the sales volumes of these drinks in Canada.
4. **The term caffeinated energy drinks may mis-characterize biological mechanism of risk:** In 2010, Health Canada’s Expert Panel on Caffeinated Energy Drinks advised the previous government to call these products “stimulant drug containing drinks” in recognition that they typically have several active ingredients. Health Canada scientists noted in a subsequent article that “long term studies on taurine and glucuronolactone have not been conducted.”² However, this characterization and all of the recommendations and concerns that flowed from the Expert Panel’s analysis were not implemented by Health Canada, a practice that is consistent with the approach that Health Canada took under the political leadership of the previous government in regards to the Trans Fat Task force, Sodium Working Group, and other expert advice.
5. **Energy drink adverse reactions were observed at all ages:** Serious adverse effects occurred throughout the age spectrum from age 8-68, with the average age being 32. Health Canada’s 2010 Expert Panel noted that 7 of 32 serious adverse reactions involved adolescents.³
6. **Energy drinks pose a stand-alone risk:** Of the 29 reported serious adverse effects of energy drinks in Canada 1995-2015, 22 involved no alcohol or illegal drugs and presented in what appeared to be healthy subjects with no other medicines. Likewise, according to the US-based DAWN study, 58% of visits involved energy drinks alone (i.e., not combined with alcohol or drugs) and cases of adverse reactions out-numbered mis-use/abuse cases by more than two-fold. In other words, this is not just a problem of interactions with other substances.
7. **Health Canada no longer automatically publishes energy drink adverse reactions:** In December 2103,⁴ in response to industry pressure, Health Canada changed the regulatory status of energy drinks from “Natural Health Products” (about which adverse reaction reports were required to be automatically published) to foods for which adverse reactions are only disclosed to individuals on application under the *Access to Information Act* upon payment of a fee and are subject to delays that often last months or even years.
8. **Risk and benefits not disclosed to consumers:** Even if there were good evidence that so-called energy drinks offered cognitive or athletic performance advantages (which there is not), it is unscrupulous to promote them while the pre-disposing risk factors for severe acute harm and death are not well understood, not acknowledged by manufacturers,⁵ and not quantitative for prospective customers. If caffeinated energy drinks were classified as “novel foods” when they

were first introduced into the marketplace—rather than the weakly regulated Natural Health Products—they might not have been approved at all. Currently, many ingredients now used in energy drinks (e.g., taurine) are *not* permitted for use in any other foods.

9. **Dietitians of Canada Position:** In its written submission to this Board, Dietitians of Canada stated “we do not support consumption of CEDs, given the potential for unwanted health effects from excessive intakes of caffeine, sugar and other ingredients in these products. In our view, there is no public health rationale to support the availability of CEDs in Canada. DC supported the 2010 recommendations of the Expert Panel...DC has recommended that the cautionary statement, ‘Not recommended for...’, explicitly name teenagers (in addition to ‘children’)”
10. **Health Canada has not taken effective action to safeguard Canadians against the risk of acute harm and possible (though rare) sudden death due to energy drink consumption or to adequately investigate the relationship.** Health Canada solicited the advice of an Expert Advisory Group, chaired by the former President of the Canadian Medical Association, and including an international roster of issue experts, but ostensibly ignored all of the Expert Panel’s recommendations since it reported its findings in 2010. By contrast, in 2002, after observing 60 adverse reaction reports and one death involving an herbal preparation containing ephedra marketed for weight-loss, Health Canada concluded that these products constituted a “Class 1 Health Risk” for some identified vulnerable population groups. Similarly, Health Canada issued a voluntary recall and stop-sale directive for products containing the herb Kava Kava on August 21, 2002 after receiving reports of four cases of non-fatal liver toxicity in Canada. A “Class 1 Health Risk” is “a situation where there is a reasonable probability that the use of, or exposure to, a product will cause serious adverse health consequences or death.” In a December 18, 2016 recall of a product called “Black Orange,” Health Canada warned that “Ephedrine and caffeine, when combined, may cause serious and possibly fatal adverse effects. Ephedrine taken in combination with caffeine can cause symptoms ranging from dizziness, tremors, headaches and irregularities in heart rate to seizures, psychosis, heart attacks and stroke.” The constellations of adverse effects for this product is similar to the reported effects of energy drinks.⁶

CHSL Recommendations

The City of Toronto be somewhat limited in its constitutional capacity to control the manufacture, marketing, and sale of products that are subject mainly to federal and provincial government law. However, as Canadian 5th largest public health authority, this Board, Toronto Public Health, the Medical Officer of Health for Toronto are potentially important opinion leaders in the broader public health community and could help spur decisions to generate evidence that might persuade Health Canada and provincial counterparts to take transformative actions to safeguarding the public, especially children, from the risk of severe acute harm and death from so-called caffeinated energy drinks.

In addition to prohibiting the sale or marketing of energy drinks in City-controlled facilities (which we strongly support), the Board could authorize the Medical Officer of Health to:

1. **Urge adverse reaction reporting:** Alert the Provincial Chief Coroner and medical practitioners in Toronto that Toronto Public Health has detected a signal and propose the inclusion of a question regarding the ingestion of stimulant drug containing drinks when data is being collected systematically on cases and publicly report these at the earliest opportunity.

2. Help launch a year-long sentinel study in hospital emergency, pediatric, and cardiology departments: Undertake a sentinel study in collaboration with a Toronto-area hospital with an emergency and pediatric department to include a question about the consumption of so-called caffeinated energy drinks, and blood tests for levels of caffeine and possibly other energy drink additives for patients exhibiting acute illness, including but not limited to cardiac distress, convulsions, unexplained death, drivers in all vehicle accidents, and other relevant circumstances.

3. Urge the federal Minister of Health to ensure better coherence and concordance between evidence and regulatory approach concerning energy drinks: Authorize the Medical Officer of Health to write a letter to the federal Minister of Health Dr. Jane Philpott urging her to:

- a) reinstate automatic disclosure of energy drink reports in the Adverse Reaction Database, and
- b) explain the rationale for Health Canada accepting and/or supporting a Canadian Beverage Association voluntary commitment that its members will refrain from marketing to children under the age of 12, even though Health Canada's own staff scientists concluded that "for adolescents the likelihood of a Health risk is greater [than for children or adults]... given that energy drinks tend to be marketed to adolescents who (unlike children) are capable of accessing these products, including the larger volumes, but may be less likely than adults to adhere to consumption recommendations."⁷

Respectfully submitted on behalf of the Centre for Health Science and Law by Bill Jeffery.

References

¹ Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. The *DAWN Report: Update on Emergency Department Visits Involving Energy Drinks: A Continuing Public Health Concern*. January 10, 2013. Rockville, MD. Available at: <http://archive.samhsa.gov/data/2k13/DAWN126/sr126-energy-drinks-use.pdf>

² J Rotstein, J Barber, C Strowbridge, S Hayward, R Huang, and SB Godefroy. Energy Drinks: An Assessment of the Potential Health Risks in the Canadian Context. *International Food Risk Analysis Journal*. Vol. 3(4) 2013.

³ Macdonald N, Hamilton R, Malloy P, Moride Y, Shearer J. *Report by the Expert Panel on Caffeinated Energy Drinks*. Nov 10, 2010. Ottawa. Health Canada. Available at: http://www.hc-sc.gc.ca/dhp-mps/alt_formats/pdf/prodnatur/activit/groupe-expert-panel/report_rapport-eng.pdf

⁴ Health Canada. Caffeinated Energy Drinks. <http://www.hc-sc.gc.ca/fn-an/prodnatur/caf-drink-boissons-eng.php>

⁵ Canadian Beverage Association infographic "Energy Drinks Canadian Facts and Information": http://www.canadianbeverage.ca/wp-content/uploads/2016/01/CBA-EnergyDrinks-Handout-EN_1A.pdf

⁶ See Health Canada's recall notice "Unauthorized product "Black Orange" seized from Keebo Sports Supplements in Regina may pose serious health risks," available at: http://healthykanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2016/60166a-eng.php?_ga=1.48454755.493377785.1489872089

⁷ J Rotstein, J Barber, C Strowbridge, S Hayward, R Huang, and SB Godefroy. Energy Drinks: An Assessment of the Potential Health Risks in the Canadian Context. *Int. Food Risk Analysis Journal* Vol. 3(4) 2013. Importantly, however, Health Canada written paper was published in a now defunct journal⁷ based in Croatia that an investigation by the Ottawa Citizen revealed had extremely low standards for review and publication of submissions.⁷

Importantly, the weak public policy recommendations set out by Health Canada scientists in that paper departed sharply from the recommendations made by Health Canada's external Expert Panel on Caffeinated Energy Drinks three years earlier and summarily dismissed as irrelevant dozens of adverse reactions. The way the authors handled evidence in these two important respects would likely have been difficult to publish in a truly peer-reviewed scientific journal. See: Tom Spears. The Very Odd Tale of Health Canada's Croatian Publication. *Ottawa Citizen* Oct 30, 2014. Available at: <http://ottawacitizen.com/technology/science/the-very-odd-tale-of-health-kanadas-croatian-publication>