

BCTOX's Toxicology "News Surveillance" Jan - 2019

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Public Health & Environmental Toxicology: What is BCTOX & why?

Health professionals (HP) including policymakers, health educators and researchers need to be regularly updated on environmental toxicology issues to keep up with rapidly evolving toxicology information, emerging health risks from environmental chemicals and to manage issues that are locally highlighted in the popular press and news media.

Environmental toxicology training is limited during education, and when HPs enter the field, they lack information on the responsibilities for regulation and risk communication among local, provincial and federal agencies, as well as their relations to international organizations, scholarly articles, and private sectors, including industry¹. All of these factors lead to avoidable confusion.

BCTOX acts as a local up-to-date resource to answer current toxicology issues. The business model of BCTOX is flexible in order to maximise its applicability. BCTOX is also still developing, and will be determining its future directions along the way.

BCTOX acts like a pendulum. It mobilises your interventions to other places where they can also be used, and also back-translates the health activities that have had a "life outside of the health system" and have made societal impacts.

While BCTOX is not official and not liable for the reported news from media, it is BC-related and full of concise information that is handpicked and fun to read. BCTOX keeps you engaged with toxicology news in BC. **BCTOX is full of inspiring ideas dedicated to B.C!**

Monthly major toxicological statistics

Mortalities In total, around 700 premature deaths could be attributed to toxic exposures in BC in May including:

- **ACUTE exposures;** [estimated]≈
 - ≈ 110 due to Illicit drug overdose
 - ≈ 10 due to suicides (CO, drugs and alcohol)
- **CHRONIC current and past exposures;** [estimated] ≈
 - 500 due to smoking and tobacco use,
 - 81 (air pollution),
 - 11 (radon)
 - 7 (asbestos)

These are equal to overall 15×10^{-5} population toxic exposure-induced deaths in March alone, including 2.4×10^{-5} acute and 13×10^{-5} chronic toxicities (estimations are subject to assumptions and limitations, and overlaps are possible (see BCTOX 2(8): 103)).

Morbidities Around 2200 calls were made to BC-DPIC (estimated from August 2017)

Sola dosis facit venenum

Only the dose makes the poison!
Paracelsus (1493 – 1541 CE)

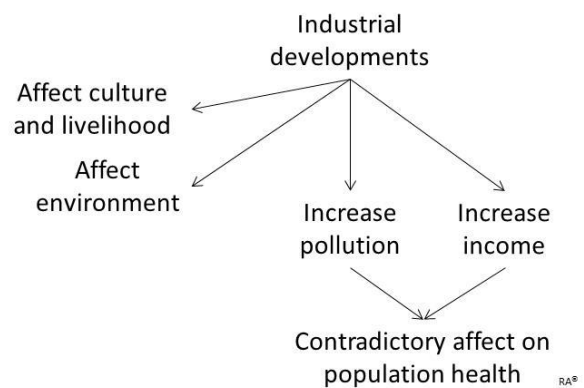
Dilemma of the pipelines in B.C. from a population health perspective

Since early January, a few checkpoints are blocking access to TransCanada's \$4.7-billion Coastal GasLink pipeline that is a 670-kilometre line that is meant to deliver liquefied natural gas (LNG) from Dawson Creek to a planned facility near Kitimat (Figure).¹



RCMP arrested 14 B.C. pipeline protesters. A B.C. Supreme Court injunction will allow police (or TransCanada) to remove camps and checkpoints set up by the Wet'suwet'en First Nation.² Protesters would have to obey the injunction to end the blockade.³

While economically this pipeline makes sense, First Nations populations, activists and environmentalists are concerned about the potential ancestral land, environmental effects and pollution. With regards to public health this pipeline project faces a dilemma similar to what is at stake for another pipeline in B.C; the trans mountain Kinder Morgan project. While jobs and in turn income will increase as a result of industrial development that in turn contributes to improving population health, they are at odds with related pollution and potential spills, traffic, etc. (Figure) Oil spills involve toxicological health risks for people participating in the cleanup operations and coastal inhabitants.²



The extent of contradictory effects is not clear, and is a matter of judgment as well as science! --- What do you think?

The majority of scientific works are focused on environmental effects of spills and to a lesser extent cultural issues.^{3 4} There is no study following the problem in a holistic approach deducting the beneficial effects of industrial developments from negative impacts. --- What do you think? To what extent one direction of the effects are more important?

¹ <https://vancouversun.com/news/local-news/rcmp-expected-to-break-up-northern-b-c-first-nations-pipeline-check-points>

² <https://vancouversun.com/news/local-news/rcmp-expected-to-break-up-northern-b-c-first-nations-pipeline-check-points>

³ <https://www.theglobeandmail.com/canada/british-columbia/article-bc-pipeline-protesters-say-theyll-obey-injunction-to-end-blockade/>

PROVINCIAL HEALTH OFFICER'S ANNUAL REPORT released on Jan 2019

--- Toxicology Related issues

The office of the provincial health officer has released a provincial health officer's annual report entitled "Taking the pulse of the population. An update on the health of British Columbians."⁵

--- B.C. is doing well in reducing diabetes and Hep C, but needs to improve on mental health and infant mortality according to Dr. Bonnie Henry, B.C.'s health officer.⁶

TAKING THE PULSE OF THE POPULATION AN UPDATE ON THE HEALTH OF BRITISH COLUMBIANS



Office of the
Provincial Health Officer

PROVINCIAL HEALTH OFFICER'S
ANNUAL REPORT

Toxicology related targets

Among the targets, toxicology related issues including

- mental health and substance use,
- environmental health
- response to public health emergencies

were highlighted. The report points to the opioid crisis and its impacts on mental health and death rates. In addition, determinants with indirect impact on toxicology related issues such as poverty reduction, addressing homelessness and action on climate change were promoted in the annual report.

According to BC's Guiding Framework for Public Health, the goal statement is: "Environments that optimize and support good health. This includes monitoring the built environment in which people live, and potential routes of environmental exposures, such as soil, air, food, and water supplies; and the living environment of people who attend or reside in licensed community care facilities."

Recommendations to meet the 2023 targets

The report centered on and around improving equal health support across the province. --- "Compared to other parts of the world, BC has good drinking water quality and air quality, and a generally safe food supply."

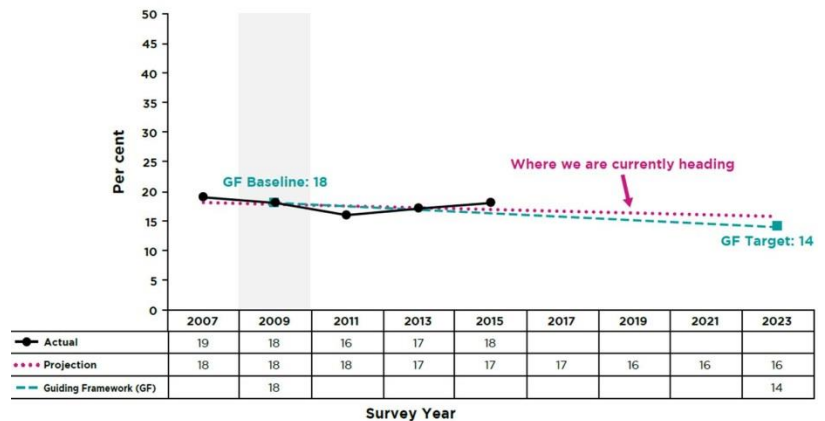
Acute Toxicities

Illegal Drug Overdose Emergency

Their activities under the direction of the Joint Task Force, task groups worked on a coordinated response to the emergency included

- Expanding access to naloxone.
- Increasing access to overdose prevention and supervised consumption services.
- Increasing access to opioid agonist treatment.
- Establishing enhanced surveillance and early-warning and monitoring systems.
- Reaching and engaging those who are using drugs alone.
- Launching and maintaining a comprehensive social marketing campaign to raise awareness of issues related to the emergency.

Actual and Projected Percentage of Households on Municipal Water Supplies That Boiled Water in Order to Make it Safe to Drink, BC, 2007 to 2023



Notes: Survey data reflect households on municipal water supplies that boiled water in the last 12 months in order to make it safe to drink. This excludes respondents who did not indicate whether they treated their water prior to consumption. See Appendix B for more information about this data source. Source: Statistics Canada, Households and the Environment Survey, 2015. Extracted from CANSIM Table 153-0123. Prepared by Population Health Surveillance and Epidemiology, BC Office of the Provincial Health Officer, BC Ministry of Health, January 2017.

[\(Read more\)](#)

**Inside the changes to Canada's food guide,^{7 8}
Environmental-clinical Toxicology related issues, 01-2019**

The newest version of Canada's Food Guide was realised on Jan 23, 2019.

1. General issues

Canada's Food Guide recommends that your plate should be divided neatly into:

- one-half vegetables and fruits,
- one-quarter whole-grain foods, and
- one-quarter assorted protein-packed foods.

This is a big change from the past. It focuses on meal planning, cooking and healthy choices:

- Planning, buying and cooking healthy food,
- Eating well plate and recipes,
- Eating on a budget,
- Food waste and the environment,

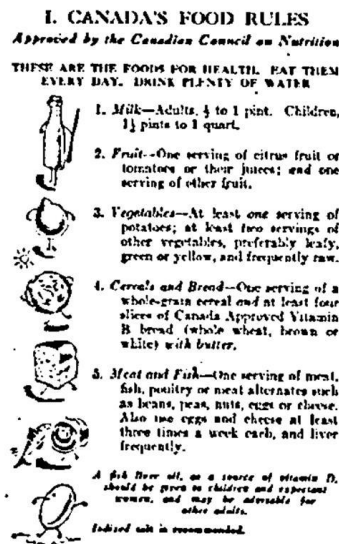
In addition, it works on

- Healthy eating at home, at school, at work, in the community, when eating out
- Life stages; Nutritional needs and healthy eating habits, children, older adults

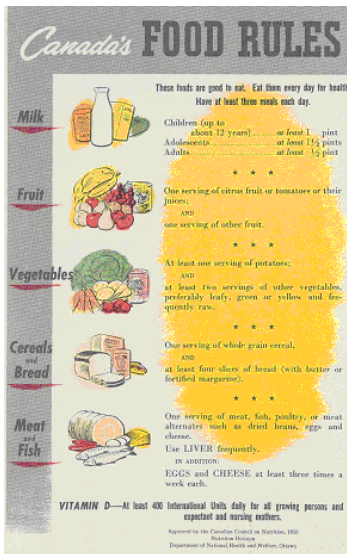
Other Points:

- No one ever eats enough fruits and vegetables
- The majority of protein section consists of beans, nuts and pulses, although some space is occupied by chicken, beef, fish and dairy
- There is no milk or fruit juice in the newest version of the guide, which now describes water as the "beverage of choice". --- "We're not telling Canadians not to eat dairy products or not to eat meat products. What we are telling Canadians, however, is to look at the variety of foods that are available out there".

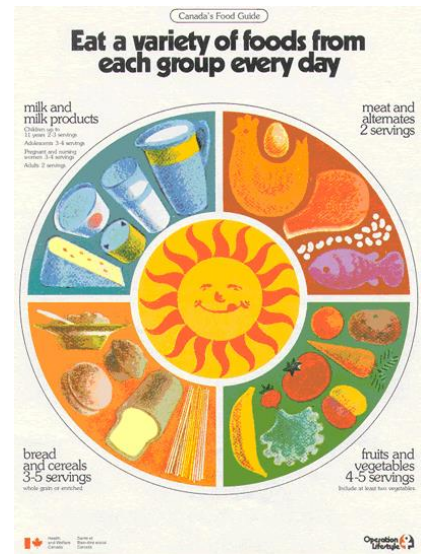
History of Dietary Advice in Canada, A picture is worth a thousand words! (photos adapted from references^{7 and 8})



1944



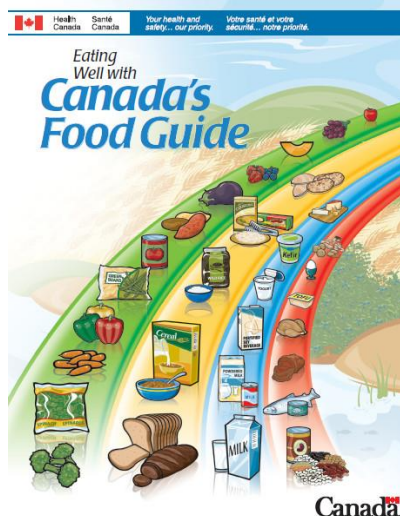
1949



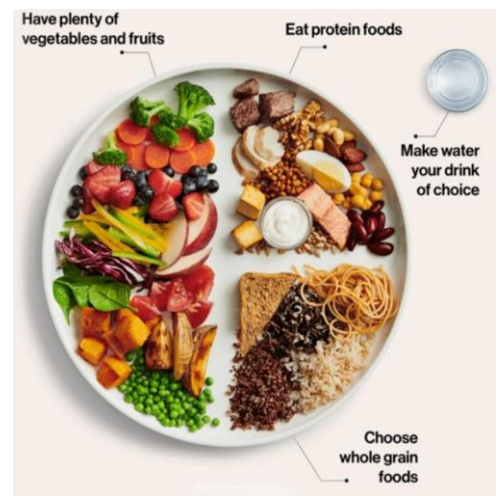
1977



1992



2007



2019

The produce section does include frozen peas and carrots, as well as canned tomatoes (cheaper).

2. Toxicology related issues

2.1. sugar substitutes

The guide stresses that sugar substitutes are not needed for healthy eating, but they can be replaced sugar. Information can be found by reading the ingredient list that may include:

- xylitol
- lactitol
- isomalt
- mannitol
- erythritol
- saccharin
- aspartame
- sorbitol and sorbitol syrup
- maltitol and maltitol syrup
- stevia extract and steviol glycosides

2.2. Healthy eating and the environment

One should be aware that the food choice they make impacts

- Their health
- Their environment
- Buying and eating foods
- Use and disposal of foods

The impact that foods can have on the environment is influenced by the type of food, where it comes from and how it is produced, packaged, processed and transported.

2.3. Food waste

Store properly, prepare enough (to avoid leftovers) and do not shop impulsively.

2.4. Make environmentally-friendly choices

- choose plant-based foods
- carry a reusable water bottle
- use reusable grocery bags
- use reusable containers to store food and pack lunches
- look for ways to reduce food packaging in what you buy
- buy food that can be transported home in your own re-fillable container
- keep perishable foods in their original packaging when you store them to extend freshness

** Some parts of this summary are pasted from the references 7 and 8.

5. Office of the provincial health officer. Taking the pulse of the population. An update on the health of British Columbians. Provincial health officer's annual report. <https://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/reports-publications/annual-reports/pho-annual-report-2019.pdf> (accessed Jan 28, 2019). Jan, 2019.

6. Abbotsford-News. B.C.'s health officer releases annual report on health targets. <https://www.abbynews.com/news/b-c-s-health-officer-releases-annual-report-on-health-targets/> (accessed Jan 30, 2019). 2019-01-25.

7. Health-Canada. Canada's Food Guide. <https://food-guide.canada.ca/>. Jan 2019.

8. CTV News. What's on your plate? Inside the changes to Canada's Food Guide. <https://www.ctvnews.ca/health/what-s-on-your-plate-inside-the-changes-to-canada-s-food-guide-1.4265399> (accessed Jan 24, 2019). 2019-01-23.

References

1. Liverman CT, Ingalls CE, Fulco CE, et al. Toxicology and Environmental Health Information Resources: The Role of the National Library of Medicine. Institute of Medicine (US) Committee on Toxicology and Environmental Health Information Resources for Health Professionals; Washington (DC): National Academies Press (US). 1997.

2. Laffon B, Pasaro E, Valdiglesias V. Effects of exposure to oil spills on human health: Updated review. *J Toxicol Environ Health B Crit Rev* 2016;19(3-4):105-28.

3. Bejarano AC. Critical review and analysis of aquatic toxicity data on oil spill dispersants. *Environ Toxicol Chem* 2018;37(12):2989-3001.

4. Li P, Cai Q, Lin W, et al. Offshore oil spill response practices and emerging challenges. *Mar Pollut Bull* 2016;110(1):6-27.