

Diet as a Source of Exposure to Environmental Contaminants: Some Food for Thought

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Risks from Food

- Pathogens
- Toxins
- Additives
- Contaminants

What is the relative importance of the above as a cause of food borne illness?

Exposure to Environmental Contaminants

- Air
- Water
- Food
- Soil/dust
- Consumer products

What is the relative importance of the above?

Food borne Illness

- Well recognized : brief exposure, short latency period
- Under reported
- Consequences : minor – fatal
- Considerable effort devoted to prevention of food borne illness
- Much success

Environmental Contaminants

- Illnesses: long exposure, long latency, may be difficult to recognize
- 'No' reporting (limited exceptions)
- Consequences: minor- fatal
- Rationale for much environmental legislation is protection of human health
- Success?

Is diet an important
source of exposure to
environmental
contaminants?

Diet and Drinking Water as a Source of Exposure to selected contaminants: Canadian Infants

Health Canada CEPA

<u>SUBSTANCE</u>	<u>% FOOD</u>	<u>% D.WATER</u>
Dibutylphthalate	82	1
Bis 2-ethylhexylphthalate	94	<1
Dioxins & Furans	97	<1
Hexachlorobenzene	99	<0.1
Nickel	96	3
Chromium	66	20
Arsenic	83	13
Cadmium	99	<0.2

Diet and Drinking Water as a Source of Exposure to selected contaminants: Canadian Adults

Health Canada CEPA

<u>SUBSTANCE</u>	<u>% FOOD</u>	<u>% D.WATER</u>
Dibutylphthalate	58	1
Bis 2-ethylhexylphthalate	84	<1
Dioxins & Furans	95	2
Hexachlorobenzene	96	<0.1
Nickel	96	3
Chromium	75	23
Arsenic	86	14
Cadmium	99	<0.2

Conclusion?

- 'Best estimates' indicate diet is the leading source of exposure to many contaminants.
- This does not imply that illness is occurring as a result of this exposure.
- For many contaminants reducing exposure can only be achieved through reducing exposures from diet.
- For other contaminants diet may be the most promising but not the only means of reducing exposure.

Is this widely
understood?

Is this important?

**What are we
doing about it?**

Surveillance

- Routine monitoring is done for some contaminants in selected foods
- e.g. dioxins and furans in milk
- Does this lead to effective action?

Ad hoc testing

- 'One off' testing of food items may be done by researchers or interest groups
- e.g. organochlorine contaminants in farmed vs. wild salmon
- Does this lead to action?

Market basket surveys

- Periodically carried out in selected Canadian cities
- Provides some trend data on selected contaminants, foodstuffs
- Can help estimate 'total' exposure for Canadian population
- Data are useful
- Do they trigger action?

Can we do a better job
of reducing
contaminant
exposures through
diet?

How?

- Should we set tougher standards? Does command and control work?
- Should we rely more on action or investigation levels?
- Should we do more monitoring?
- Should food processors and producers do more?
- Should government do more?