Improving Drinking Water Safety: Are Tougher Regulations the Answer?

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Safe Drinking Water

- Canadians have taken for granted
- Has confidence eroded?
- Fear of contaminants
- Walkerton tragedy, other outbreaks
- General response theme has been ‘tougher standards’
- How effective will this be?

What is ‘Safe’ Drinking Water?

- Healthy?
- Pure?
- Potable?

What is ‘Safe’ Drinking Water?

- Water that doesn’t kill us or make us sick now or later.
- NOT synonymous with ‘zero risk’!

What is in drinking water that makes people sick?

- Do we know how much illness in the Canadian population is attributable to drinking water?
- Do we have consistent information on biological, chemical, and radiological contaminants in Canadian drinking water?
- Do we have consistent information on risk factors in Canadian drinking water supplies?

What do we know about DW related illness

- Vast majority of reported cases of reported illness are due to pathogens.
- Some epidemiological studies have linked levels of disinfection by-products to increased risk of cancer.

What is in Drinking water that makes people sick?

No formal assessments of this have been done, but based on best available evidence for British Columbia:

1) Pathogens (cryptosporidium, giardia, campylobactor, salmonella, viruses)
2) Disinfection by-products
3) Arsenic

B-g algal toxins?, radiological ?

How do we determine ‘safety’ of drinking water

- One approach is to set ‘standards’ for contaminants for at the tap and measure
- Seems logical but will it work?
- We’d need to set standards for those contaminants that make us sick, measure them accurately and take action to prevent consumer exposure in an appropriate time frame.

Concentration based standards for contaminants

- Do they cover the important sources of risk?
- What's in the Canadian Drinking Water Guidelines?
- For Pathogens?
- For chemicals?

Concentration based Standards for Contaminants

- Majority of standards are for contaminants that account for little or no ‘burden of illness’ in the Canadian population
- No concentration based standards for pathogens that account for large portion risk to public (and we can’t set these)
- Unclear that reliance on concentration based standards for any pathogen provides early enough action to prevent outbreaks

Sounds Scary!

But….

- Outbreaks are relatively rare
- Most Canadian Drinking Water supplies are well run and water is ‘safe’
- This is particularly true for large water systems that serve the overwhelming majority of Canadians
- Approaches other than concentration based standards are used to effectively reduce risks
- *Source to tap* approach, use of *multiple barriers*

Multi-Barrier approach

from Hrudey& Hrudey 2004

- Source protection and Selection
- Treatment
- Distribution
- Monitoring
- Response

So What's the Problem?

- Small water systems!
- How effective is our implementation of 'source to tap' approach?
- How effective are the various barriers?
- How do we set priorities for improvements in drinking water systems or sources?

Can We Regulate This?

- How effective are senior governments at regulating small public entities?
- Is ‘command and control’ approach or threat of legal sanctions really an effective approach to improve drinking water safety?
- Mostly we are seeking to improve ‘level of performance’ rather than ‘level of purity’
- The latter is easy to regulate; what about the former?

Key Gaps to Improve Safety of Drinking Water

- What is current burden of illness from drinking water in the Canadian population?
- What does a review of Canadian EVIDENCE indicate as the most important sources of risk in Canadian water systems?
- How effective are our current regulatory regimes in dealing with key sources of risk?

What do we need?

- Better information on waterborne illness
- Better information on not just drinking water, but drinking water *systems*
- Consistent national (or at least provincial) information is essential
- This is a challenge for Public Health; is it a challenge for Public Health Law?