



# Public Health and Industry: Partners In Reducing Lead Exposure

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Angela Eykelbosh, Ph.D.

Environmental Health and Knowledge  
Translation Scientist



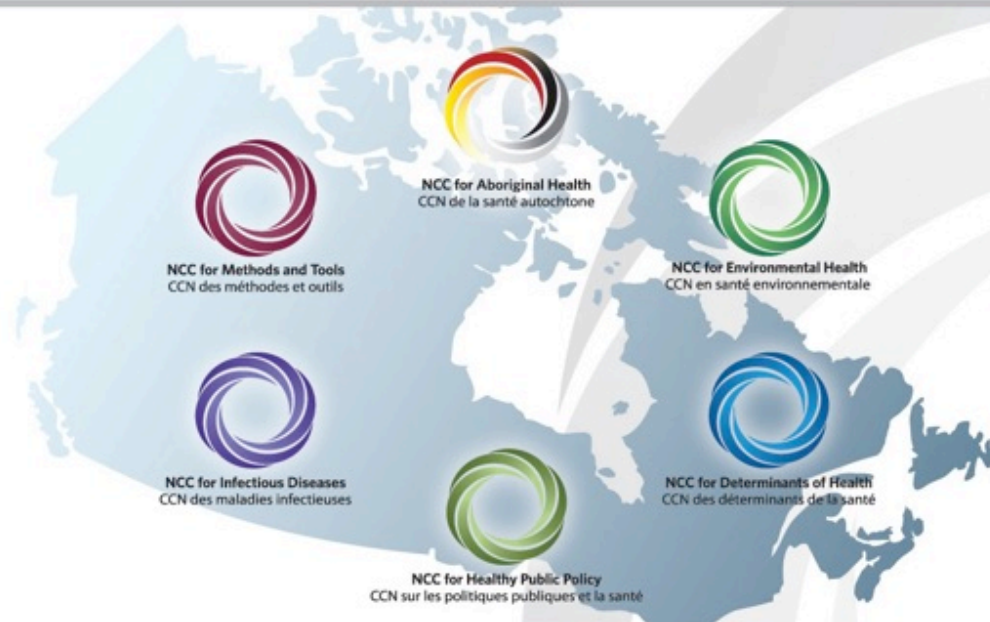
BC Centre for Disease Control  
An agency of the Provincial Health Services Authority



National Collaborating Centres  
for Public Health



Centres de collaboration nationale  
en santé publique



STRENGTHENING PUBLIC HEALTH ACROSS CANADA | APPUYER LA SANTÉ PUBLIQUE AU CANADA

Established by the Public Health Agency of Canada in 2005 to promote the use of knowledge and evidence by public health practitioners and policy-makers in Canada.

# The NCCEH Mandate: Knowledge Translation

## Synthesize & exchange knowledge

- Incorporate evidence from research and experience for the purpose of improving or developing policy/practice

## Identify gaps in knowledge

- Catalyst for new research or application of research

## Build capacity

- Provide tools, establish networks, foster partnerships

- **Target Audience:**

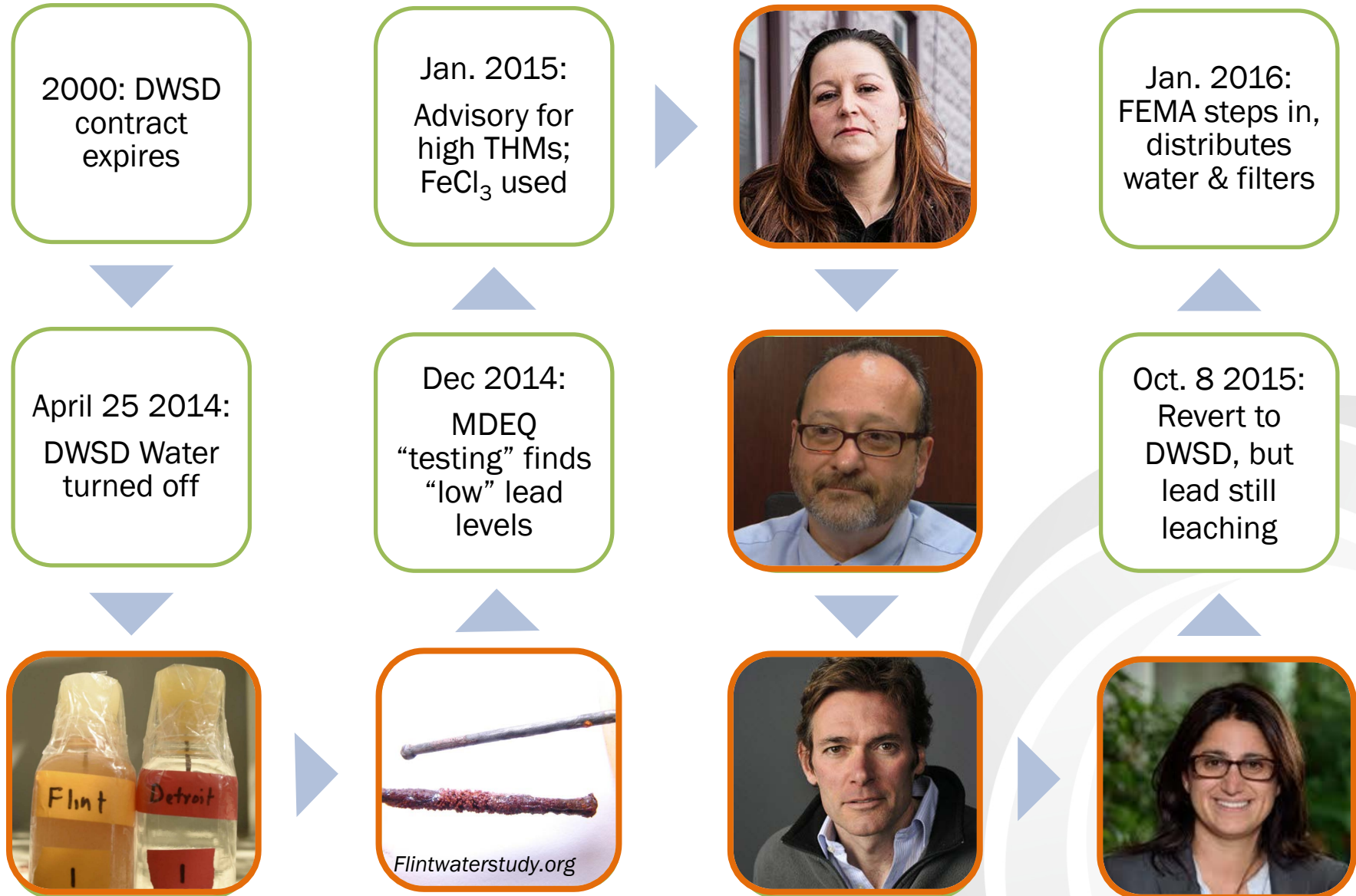
- Medical health officers, environmental health officers and other public health practitioners and policy-makers.

# The Flint Disaster

- We know *what* happened...
- But *how* did it happen?
- What does it mean for the people of Flint?
- Can it happen in Canada?
- What role can the water treatment industry play in health protection?

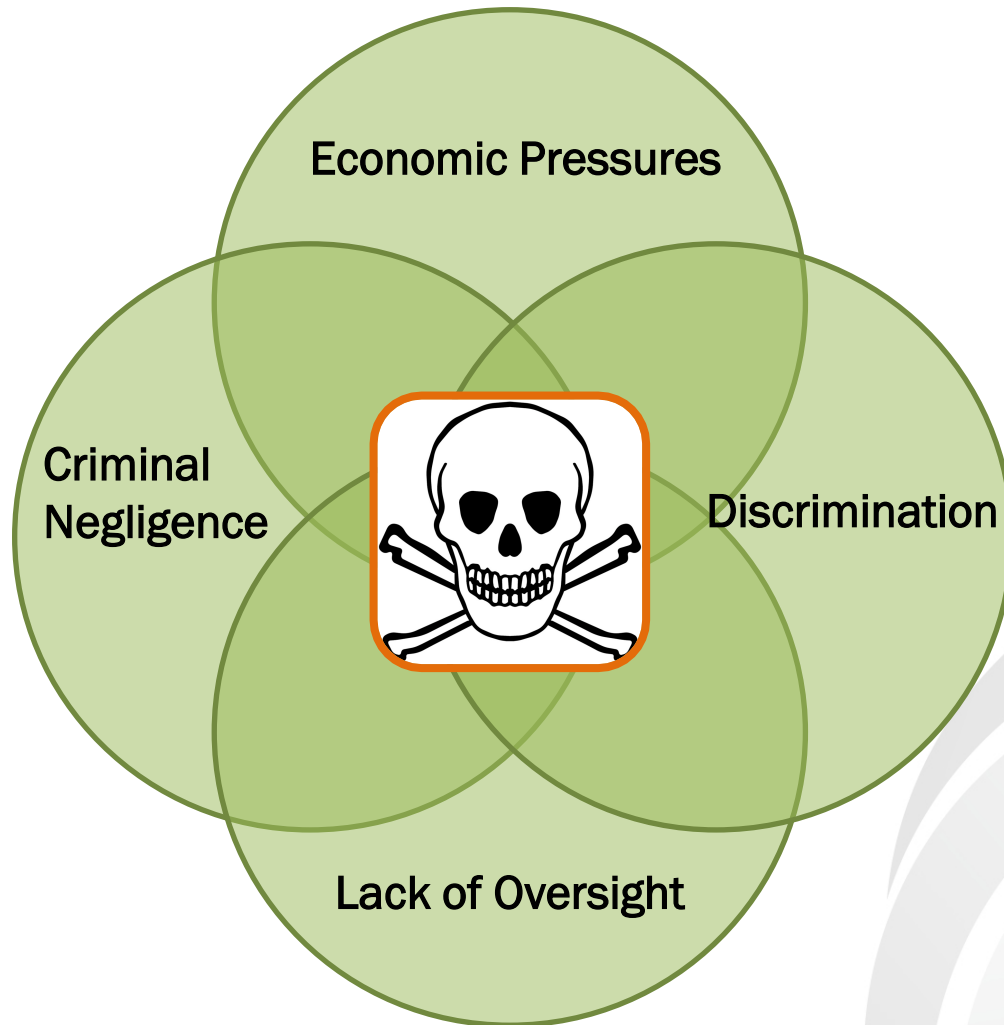


# Unfolding of a Public Health Crisis



# Flint: A tragedy of errors and wrongdoing

- Emergency Managers
- City officials
- MDEQ employees
- MDHHS employees



Michigan Civil Rights Union releases report on the role of systemic racism in the crisis.

- EPA regional administrator resigns; EPA sued for \$229 million

# Emergency Response

- 9.3 million liters of water distributed
- 50,000 filters, 243,000 cartridges distributed
- Expansion of blood lead testing, Medicaid coverage, Head Start programs, and local health centers
- \$250 million from state, \$100 million from feds for water infrastructure
- Potentially billions in infrastructure, treatment, lost income... Partly for the lack of \$74,340 (531 days) of corrosion inhibitor!



# Where are they at now?

- January 2017 lead levels back below federal limits, but still using filters.



*“There’s no reason to believe  
the water in Flint is more  
dangerous than other US  
cities”*

--Marc Edwards, Virginia Tech



# What will the Flint Disaster mean for individuals and communities?

## HIDEOUS

- Acutely toxic
- Multiple body systems
- Irreversible effects

- Commonly present
- Effects at low levels
- Hard to diagnose
- Worse for children

## INSIDIOUS



# What does mass lead poisoning mean for individuals?



<10  
µg/dL

Blood Lead Intervention Level. **Neuro-behavioral effects well below this level.**

>10  
µg/dL

Increase in spontaneous abortion, reduced birth weights, and premature births.

>40  
µg/dL

Anemia, reduced sperm counts.

>60  
µg/dL

Kidney damage, reduced vitamin D levels.

>70  
µg/dL

Encephalopathy, coma, death.

**CHMS Dataset:** 1.2 µg/dL in adults, 0.68 µg/dL in children. Only 1% >10 µg/dL.

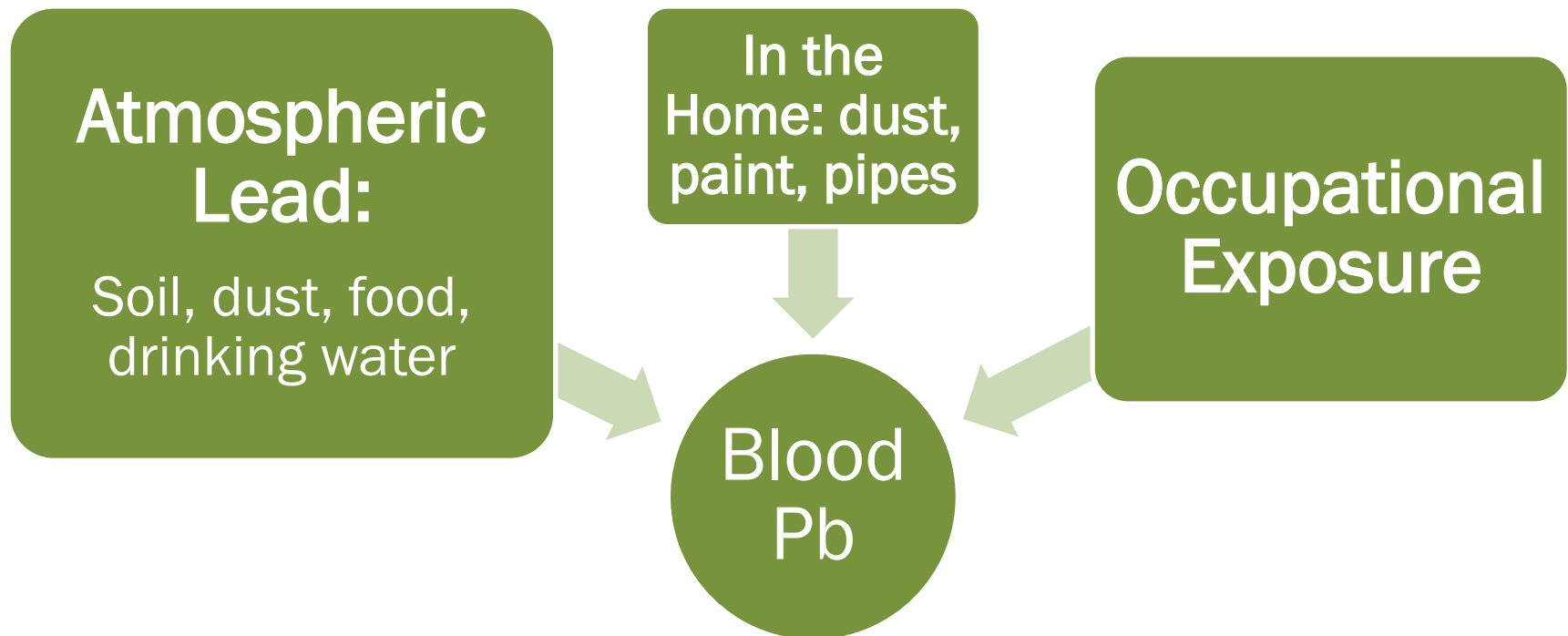
## A note on guidelines and what they mean:

Country	Drinking Water	Blood Lead Intervention Level
US	15 ug/L	5 ug/dL
Canada	10 ug/L	10 ug/dL

- Guidelines are a compromise between health evidence and what is reasonably achievable.
- There is no safe level of lead exposure.
- There is more than one source of lead.

# Where's all that lead coming from?

Estimated that humans have mined and released nearly *300 million tonnes* of lead into the environment... primarily in the last 500 years!



# What does mass lead poisoning mean for individuals and communities?

**Pb**

in blood &  
teeth (bone) of  
fetuses,  
children, &  
young adults.



**CAPACITY:**  
Intelligence  
Memory  
Attention  
Language  
Visuospatial  
skills  
Motor skills  
Affect/Mood

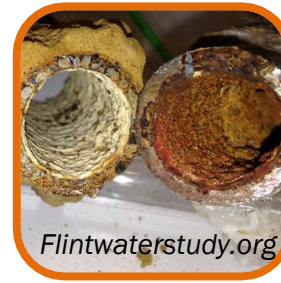


**PERFORMANCE:**  
Test scores  
Class standing  
Lower vocabulary  
  
Reading disability  
Absenteeism  
Self-reported  
delinquent activity  
Violent crime

For every 10 ug/dL increase in blood lead, a  
child loses ~4 to 7 IQ points.



Lead exposure



Poor quality housing

Children impacted most

# Lead Perpetuates Inequities

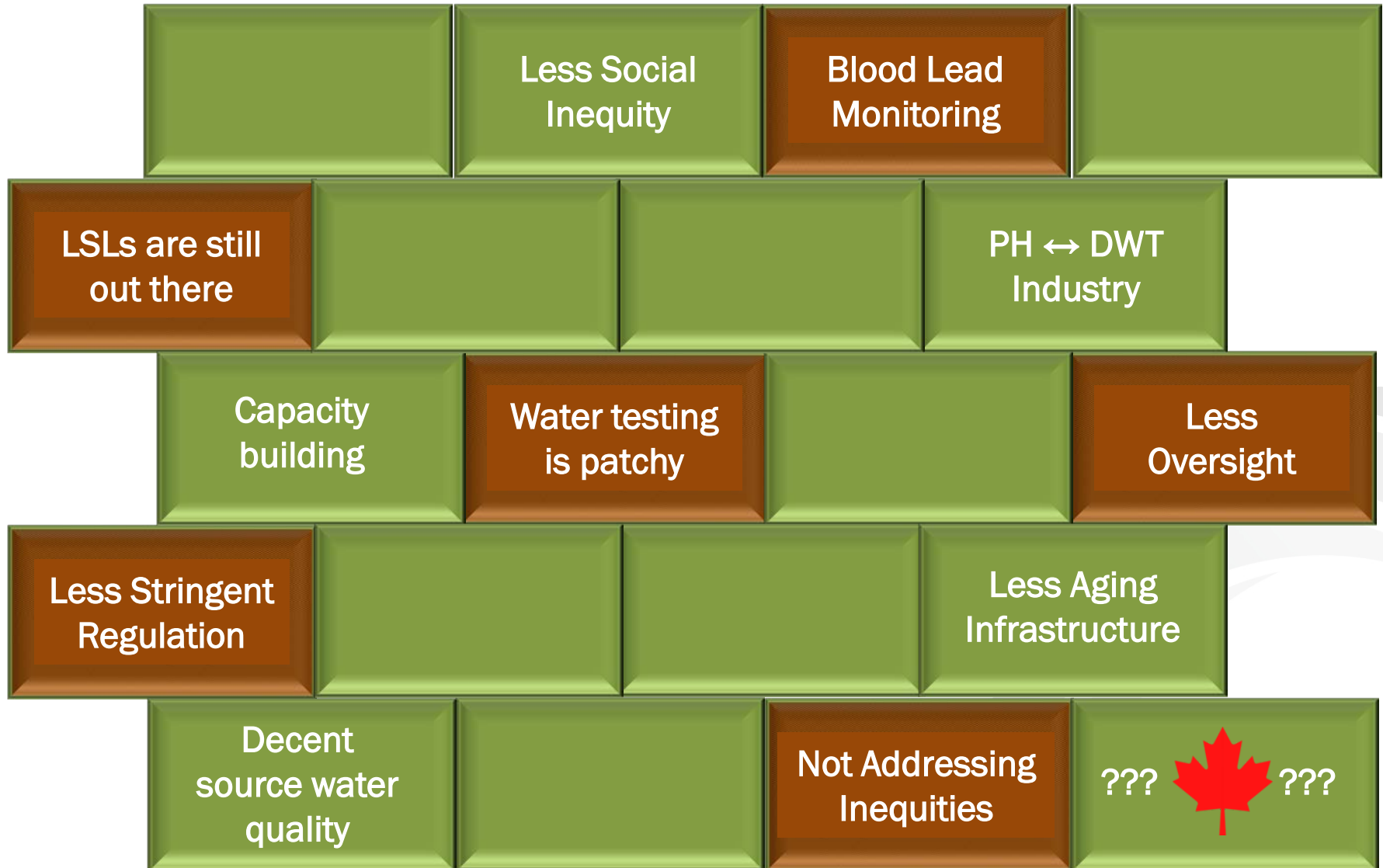
Unrealized potential?

Irreversible neurological & behavioral consequences

Poorer performance in school; coping issues

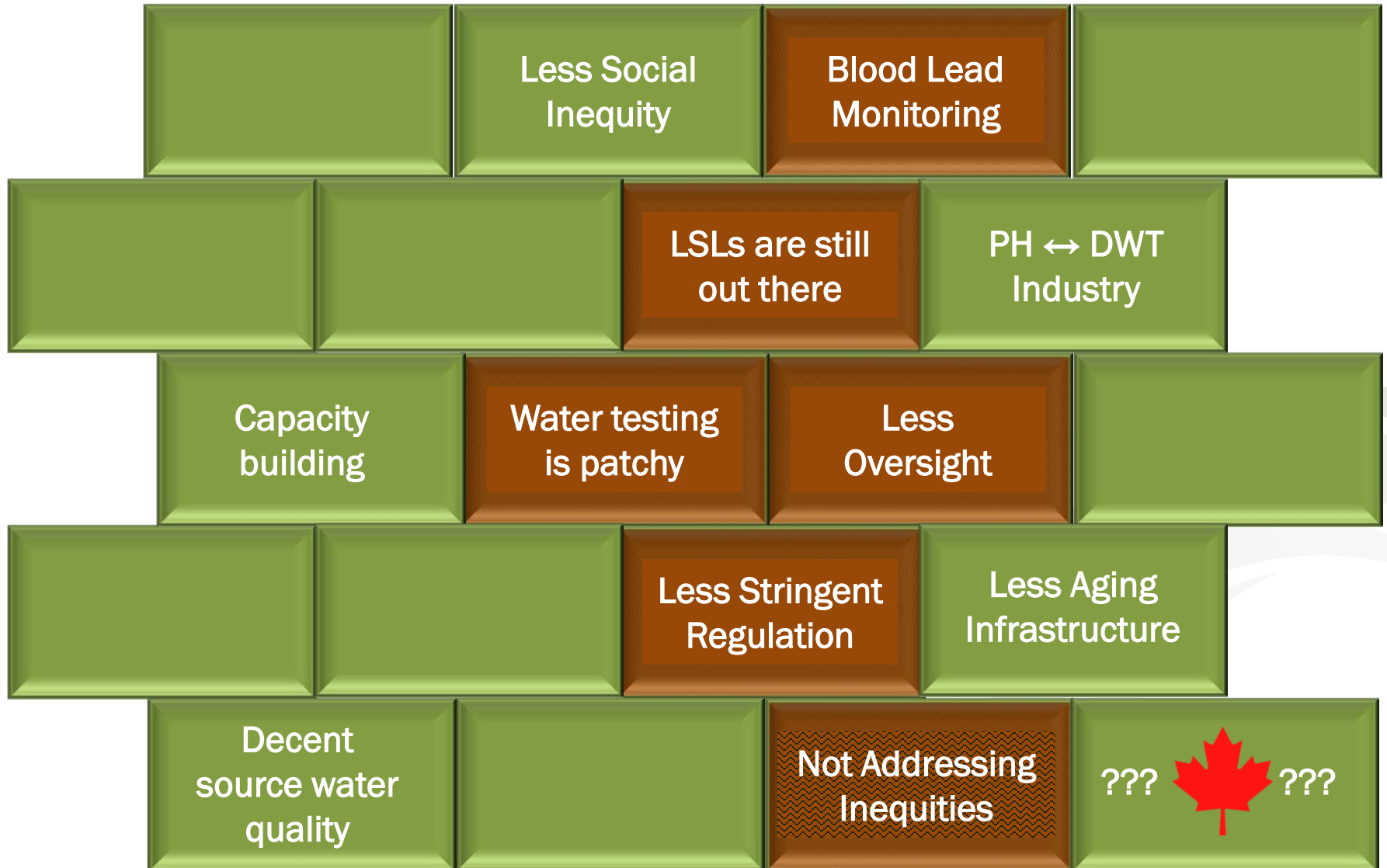


# Can Flint Happen in Canada?

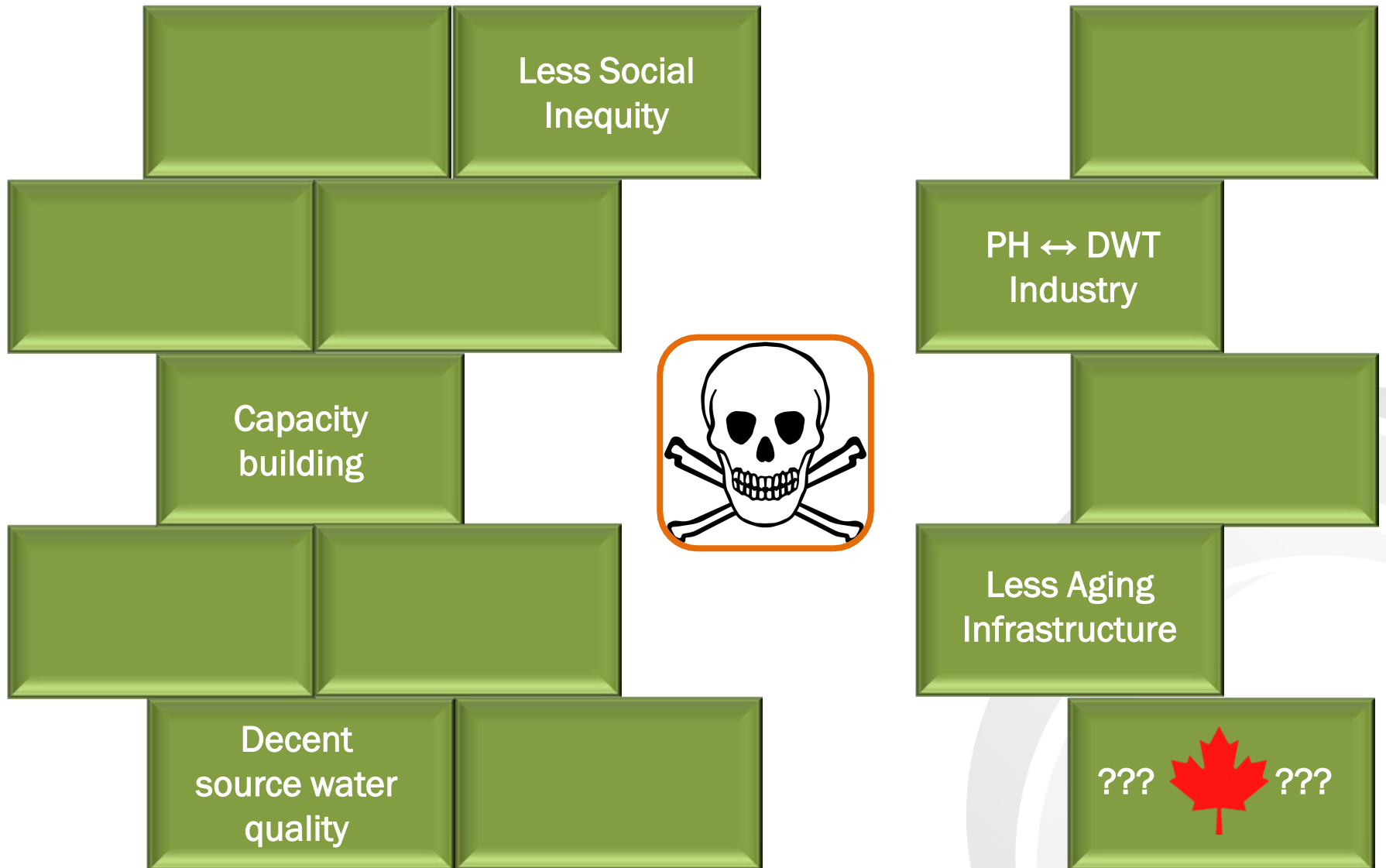




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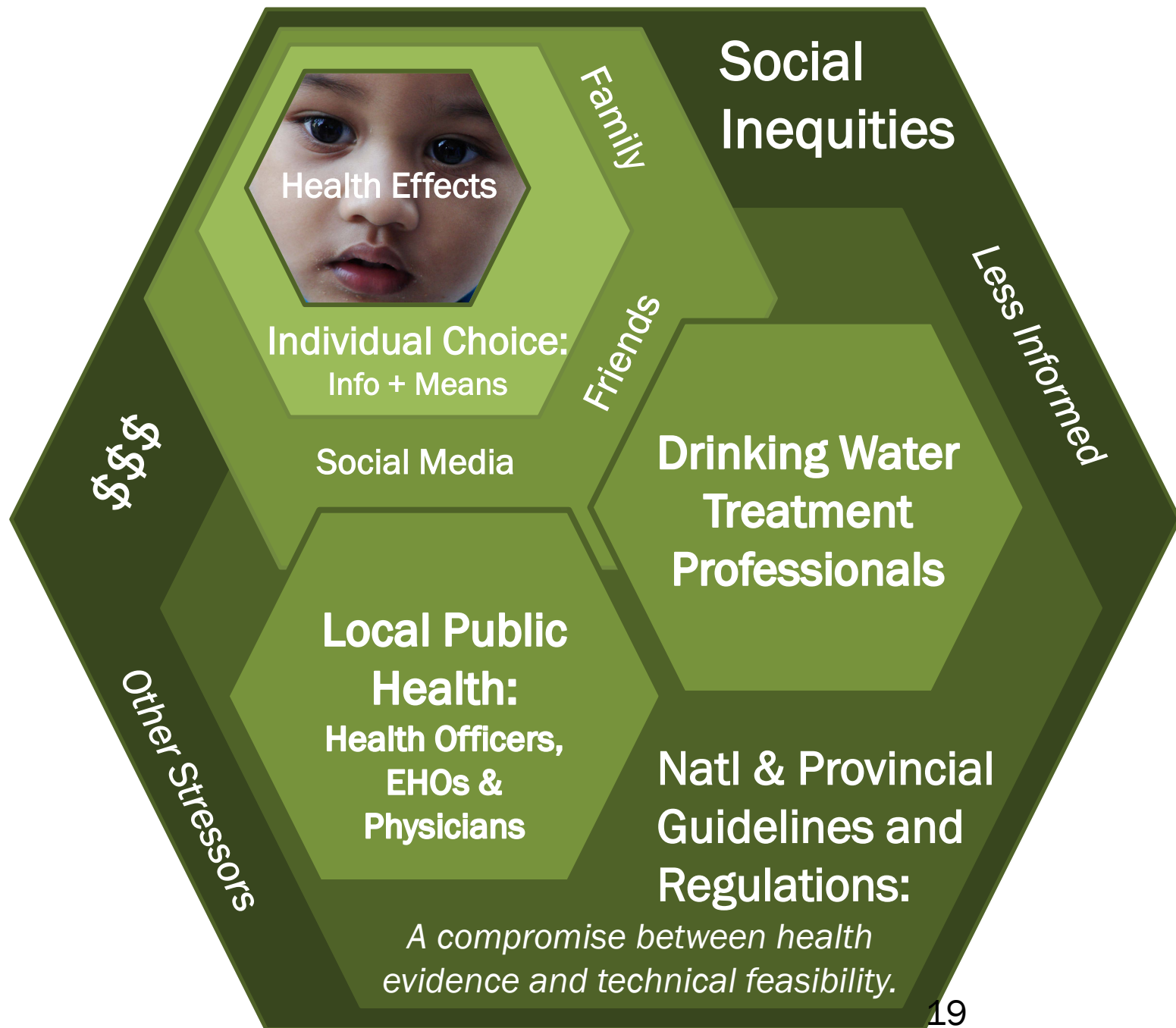


# Can Flint Happen in Canada?







**We can help  
Canadian kids by  
understanding how  
household DW  
decisions are  
influenced.**



# **DWT Professionals Occupy a Position of Trust**

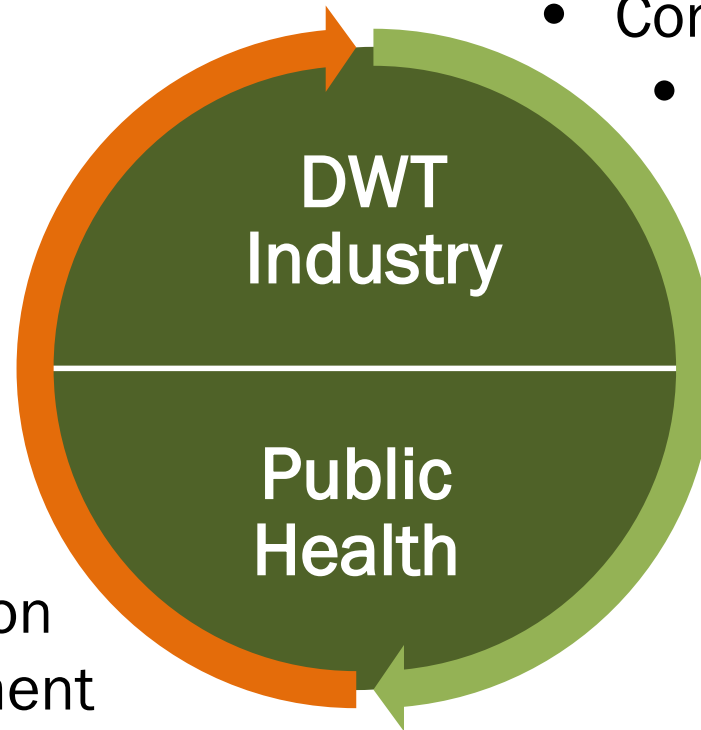
- Expertise proves itself
  - Share technical knowledge
  - Greater personal contact with public
  - On-site assessment of issues
  - Focused on individual benefit
  - Problem solvers!
- 
- A decorative graphic in the bottom right corner consisting of several concentric, overlapping arcs in shades of gray, creating a sense of motion or a stylized wave.

# Building Bridges: What does Public Health Do?

- Inspections and advice
  - Enforcing regulations
  - Surveillance
  - Setting/informing guidelines
  - Policy Interventions
    - E.g., blood lead monitoring
- 

# Building Bridges: How Can We Help Each Other?

- DWT Professionals :
  - Connection to the public
  - Risk communication
  - Collaborate with PH on policy vs. practice gaps.



## What does PH offer?

- Risk communication
- Exposure assessment
- Hazard assessment
- Collecting the right information, at the right time, from the right people/houses



# What Can You Do?



- Be ready with the facts.
  - Factsheets from most health authorities
  - Reduce lead exposure wherever possible... and not just in drinking water.
- Identify your partners in public health, and involve them where appropriate.
- Use guidelines cautiously
- Be aware of local lead abatement programs.

# Questions?

With special  
thanks to Mr.  
Nelson Fok  
CPHI(C) for  
supporting  
materials.



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**Centre de collaboration nationale  
en santé environnementale**

## EQUALITY VERSUS EQUITY



In the first image, it is assumed that everyone will benefit from the same supports. They are being treated equally.



In the second image, individuals are given different supports to make it possible for them to have equal access to the game. They are being treated equitably.



In the third image, all three can see the game without any supports or accommodations because the cause of the inequity was addressed. The systemic barrier has been removed.



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