



Public Health: Thallium in Water

Utah APPLETREE

ATSDR's Partnership to Promote Localized Efforts to Reduce Environmental Exposures

McKell Drury

Environmental Epidemiology Program



Who we are

- Utah Department of Health, Environmental Epidemiology Program
 - Toxicologist - Dr. Craig Dietrich
 - Epidemiologist - Alex Wu
 - Health Educator - McKell Drury
 - Environmental Scientist - Sam LeFevre
- Co-operative partners with the Federal Agency for Toxic Substance and Disease Registry (ATSDR)/Center for Disease Control (CDC)
- Work with:
 - Local health departments
 - Environmental Protection Agency (EPA)
 - Utah Department of Environmental Quality

Environmental Epidemiology Program



What we Provide

- Independent, objective health decisions based upon the best available science and data
- Health education to minimize exposure
- Recommendations to the EPA and UDEQ for further monitoring

What we Do Not Provide

- Remediation or “site clean-up”
- Legal advice
- Environmental sampling and testing
- Enforcement of regulatory standards
- Medical attention or health care services

What is Thallium?

Thallium is:

- Naturally occurring
- Found in trace amounts in the earth's crust
- A bluish-white metal
- Odorless and tasteless
- Absorbed by plants and enters the food chain
- Built up in fish and shellfish
- Not broken down, it stays in the air, water, and soil for a long time.



How can I be Exposed?



Air ~ Water ~ Food

Vegetables in order of greatest Thallium uptake

Garden Vegetables:

1. Spinach, radish, cabbage
2. Lettuce, onion, peas
3. Tomato, beans

*Based on 2001 New Zealand Study

Field Crops:

1. Potato
2. Beans
3. Corn and grain

*Based on 2009 Chilean Study

“Based upon the reported thallium concentrations in Lehi water, consuming garden vegetables grown in this water should not present an apparent health hazard.”

~Dr. Craig Dietrich, Toxicologist
Utah Department of Health

How can I be Exposed?

“Based upon the reported thallium concentrations in Lehi water, aquatic life should not be adversely affected.”

~Dr. Craig Dietrich, Toxicologist
Utah Department of Health



Health Effects of Thallium Exposure



Short Term Symptoms*

- Nausea and vomiting
- Burning in the hands and feet
- Dramatic hair loss

*All symptoms are temporary and will go away when exposure ends

Long Term Health Effects

- Nervous System
 - Kidneys
 - Liver
 - Lungs
 - Heart
-
- Thallium is not classifiable as to its human carcinogenicity
 - **Birth defects** were not reported in the children of mothers exposed to low levels from eating vegetables and fruits contaminated with thallium.

Health Effects of Thallium Exposure

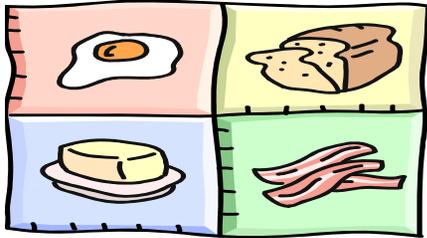


"Based upon the drinking water sampling data collected by the Lehi Water Department, the amount of thallium that residents could have been exposed to, between February 16th 2012 to March 8th 2012, could have resulted in temporary symptoms of thallium poisoning.

Over this short period of exposure, truly harmful health effects would only have been expected if thallium concentrations in the water were 10,000 to 100,000 times the amount found in the sampling."

~Dr. Craig Dietrich, Toxicologist
Utah Department of Health

Ways to Reduce an Exposure



Eat a balanced diet



Wash fruits & veggies



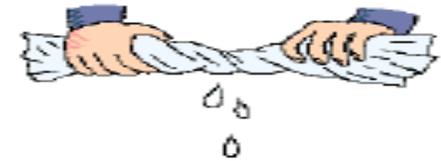
Bathe regularly



See your physician



Clean toys



Wet dust & mop



Bathe pets



Wash hands



Take off shoes
to go inside

Thallium in Lehi Water



Conclusions:

- Residents could have experienced temporary symptoms
 - Nausea and vomiting
 - Painful burning in the hands and feet
 - Dramatic hair loss

- Currently there is **NOT** a thallium exposure concern from Lehi's drinking water

Recommendations:

- If you experience symptoms, see your physician
- Testing is available
- Contact your local health department

Contact Us



Utah Department of Health

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Utah County Health Department

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