



HEALTH EFFECTS MONITORING PROGRAM

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What is the Health Effects Monitoring Program?

A long-term program to monitor the levels of Arsenic and other contaminants in the body of residents of Yellowknife, Ndilo and Dettah.

Baseline sample collection concluded in spring 2018.



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Why a Health Effects Monitoring Program?

Program under the Giant Mine Remediation Project

- Giant Mine is:
 - Located within Yellowknife boundary
 - No longer in operation since 2004
 - Highly contaminated with Arsenic Trioxide
- Site currently undergoing remediation since April 2021



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The **Giant Mine Remediation Project** was approved by the Mackenzie Valley Environmental Impact Review Board under several conditions.

One of the conditions stated that:

*“The Developer will work with other federal and territorial departments as necessary to **design and implement a broad health effects monitoring program in Ndilo, Dettah and Yellowknife focusing on arsenic and any other contaminants in people which might result from this Project.**”*

This will include studies of baseline health effects of these contaminants and ongoing periodic monitoring. This will be designed with input from: Health Canada, GNWT Health and Social Services and the Yellowknife medical community, and the Yellowknives Dene and other potentially affected communities.”



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Objectives of YKHEMP

- Establish*** | baseline levels of arsenic exposure in body
- Monitor*** | levels of contaminants in the body over time
- Ensure*** | that remediation efforts do not negatively impact people's health
- Address*** | public concerns through clear and transparent communication



Who are we?

Principal Investigator: Dr. Laurie Chan

- Full-time Professor at the University of Ottawa
- Canada Research Chair in Toxicology and Environmental Health
- Experience in traditional food safety research in this region
- Leading Nationwide First Nations Food, Nutrition and Environment Study (FNFNES)
- Member of the Independent Peer Review Panel for INAC since 2002



Partnerships

- University of Ottawa
- Yellowknives Dene First Nation
- GNWT-Environment and Natural Resources
- GNWT-Health and Social Services
- Giant Mine Oversight Board
- Crown-Indigenous Relations and Northern Affairs Canada
- North Slave Métis Alliance
- City of Yellowknife
- Health Canada

With additional support from:

Institute for Circumpolar Health Research



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What is Arsenic?

- Naturally occurring element
 - Soils, rock, groundwater
- Released in industrial activities like mining
- Different forms
 - Some toxic, some not
- Variety of health impacts



How can I be exposed to Arsenic?



Inhalation



Ingestion



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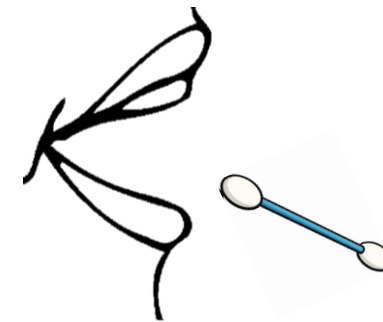
How was the program be carried out?

- Begun in September 2017
- All interested participants were welcome (ages 3+)
- Participants scheduled home visits with a registered nurse



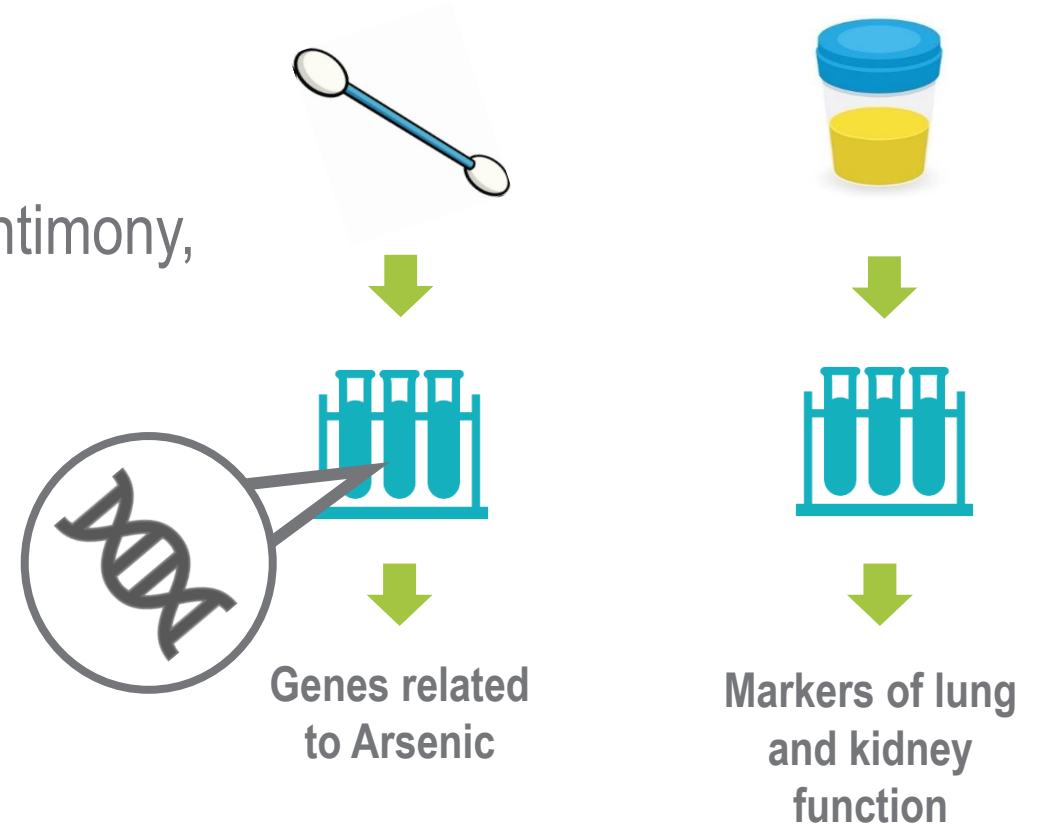
What was done?

- Lifestyle questionnaire
- Food frequency questionnaire
- Medical history questionnaire & brief medical examination
- Collection of biological samples:
 - Urine
 - Toenail
 - Saliva



What was measured?

- Recent exposure levels of Arsenic
 - In urine and toenail
- Recent exposure levels of Cadmium, Lead, Antimony, Manganese and Vanadium
 - In urine
- Indicator of kidney function (children only)
 - In urine
- Indicator of lung function (children only)
 - In urine
- Genetic differences
 - In saliva



What happened after sample collection?

- All samples and questionnaires were identified by a code number & kept confidential throughout study.
- Population level results were compared with rest of Canada.
- Individual results were mailed to participants in a personal letter in 2019.
- Medical counselling was provided if needed.
- Samples were archived for future re-testing in case other metals of concern discovered.



Why people participated?

Opportunity | to find out your own levels of exposure

Help | to ensure remediation efforts do not negatively impact people's health

Contribute | to a better understanding of local contaminant exposure in and around Ndilo, Dettah and Yellowknife



Project Timeline

Short-term:



Long-term:

- In 5 years (2022-23): children 3-19 years
- In 10 years (2027-28): adults and children (ages 3+)



Contact Information

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Thank you