



HEALTH EFFECTS MONITORING PROGRAM

Baseline Study Results Yellowknives Dene First Nation

Presented by Renata Rosol, Project Manager
Dettah, June 8, 2019

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.



HEALTH EFFECTS
MONITORING PROGRAM

Objectives

- 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



Prospective Cohort Study

Baseline sample collection

Child and Adult participants

2017-2018

Follow-up sample collection

Child participants

2022

Child and Adult participants

2027



Health Effects Monitoring Program Team

Principal Investigator: Dr. Laurie Chan

Professor and Canada Research Chair in Toxicology and Environmental Health at the University of Ottawa

- Renata Rosol, Project Manager
- Elizabeth Liske, Community Project Coordinator
- Anna Bergen, Nurse Practitioner
- Iana Nazarenko, Research Assistant
- Carine Côté-Germain, Field Coordinator
- Emmanuel Yumvihoze, Laboratory Manager
- Rajendra Parajuli & David Hu, Post-Doctorate Fellows
- Janet Cheung & Claudia Tanamal, Graduate Students



Partnerships

Advisory Committee

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

Other research partners

- Statistics Canada
- Institute for Circumpolar Health Research
- Génome Québec



Research Team



2017



2018



HEALTH EFFECTS
MONITORING PROGRAM



April 2017 Community Meetings

Sample Collection

Wave 1 Sept-Dec 2017

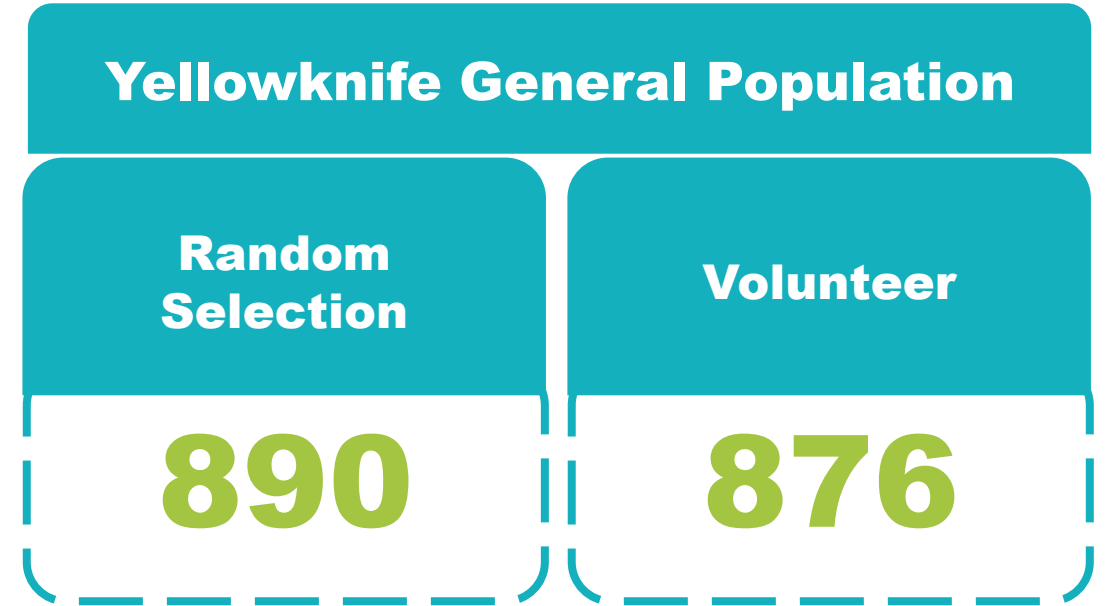


Wave 2 Apr-June 2018



HEALTH EFFECTS
MONITORING PROGRAM

Who participated in 2017-2018?



2037 participants in total



Who participated in 2017-2018?

Yellowknives Dene

Living in Ndilo, Dettah or
Yellowknife



87 Children



138 Adults

225 Total

Total Participants

NSMA, Yellowknife, YKDFN



506 Children



1531 Adults

2037 Total



Laboratory Analysis



What was collected?

Results so far



Questionnaire

Life-style and
Exposure
History



Urine

Arsenic
exposure
(days)



Toenail

Arsenic
exposure
(months)



Saliva

Genetic factors
for arsenic
metabolism



What was measured so far?



- **Total arsenic**
- **Arsenic species**
- **Other metals of concern**



Total arsenic



WHAT GUIDELINES DO WE COMPARE OUR RESULTS TO?

The CHMS has similar participant numbers, ages, and gender.

Canadian Health
Measures
Survey (CHMS)

represents

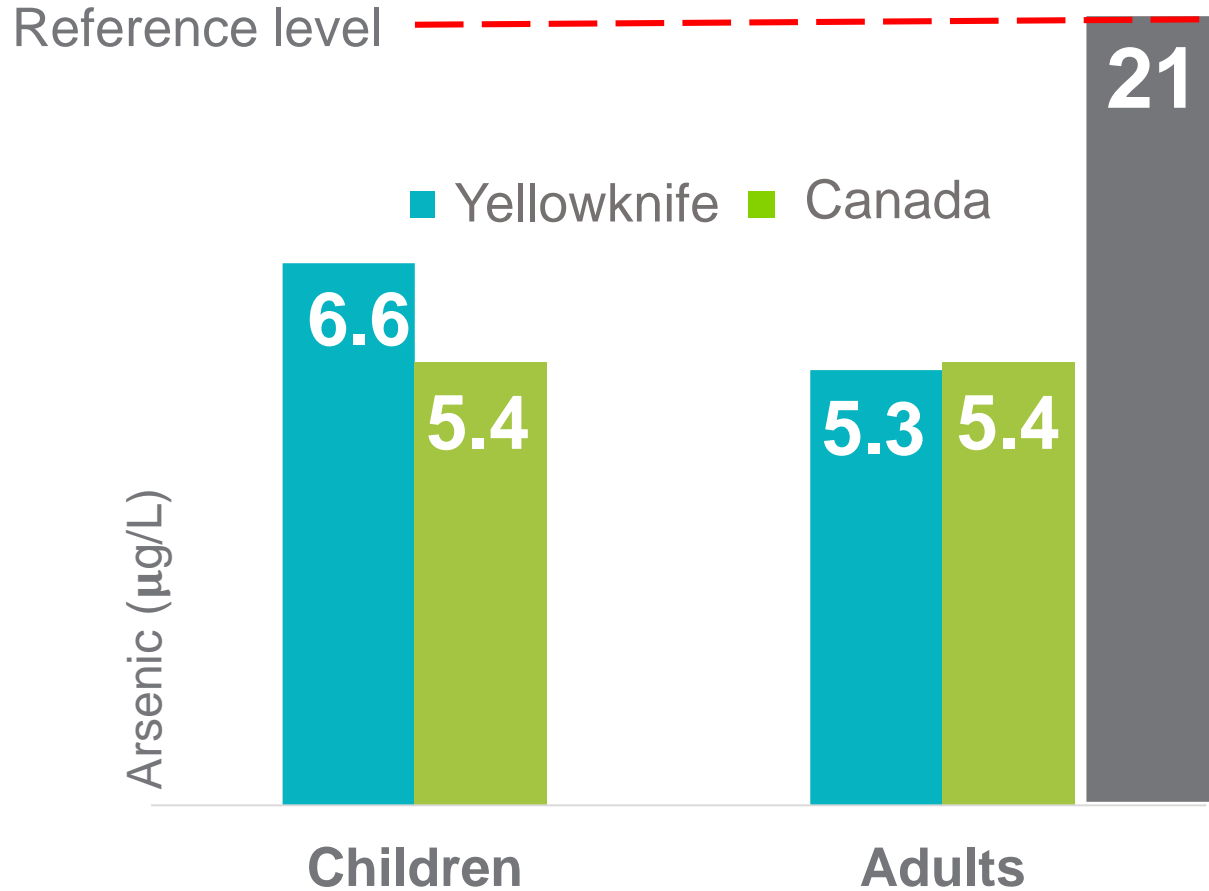
Canadian population

REFERENCE LEVEL set by CHMS
is **21 ug/L** Arsenic in URINE



HEALTH EFFECTS
MONITORING PROGRAM

Urine Results Yellowknife (random) Comparison with CHMS



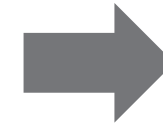
REFERENCE LEVEL set by CHMS
is **21 ug/L** Arsenic in URINE

Children



HIGHER

Adults



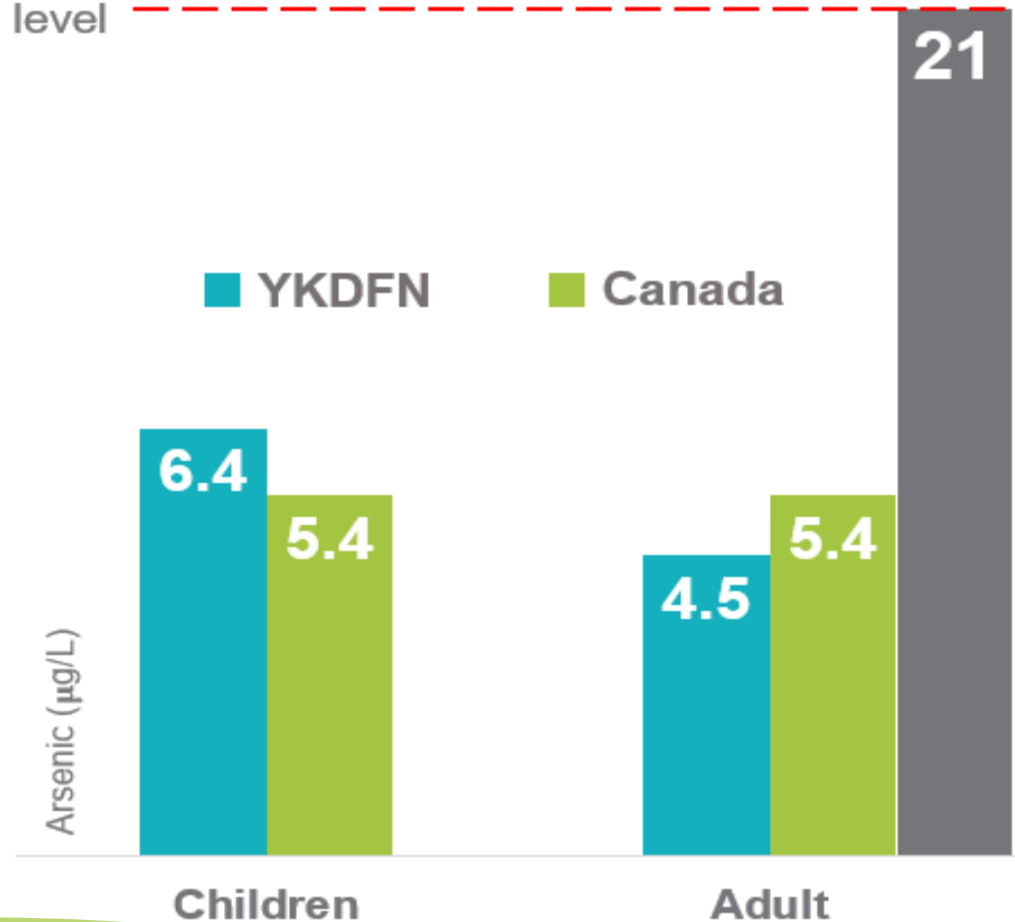
SIMILAR



Urine Results Yellowknives Dene First Nation Comparison with CHMS



Reference level



REFERENCE LEVEL set by CHMS
is **21 ug/L** Arsenic in URINE

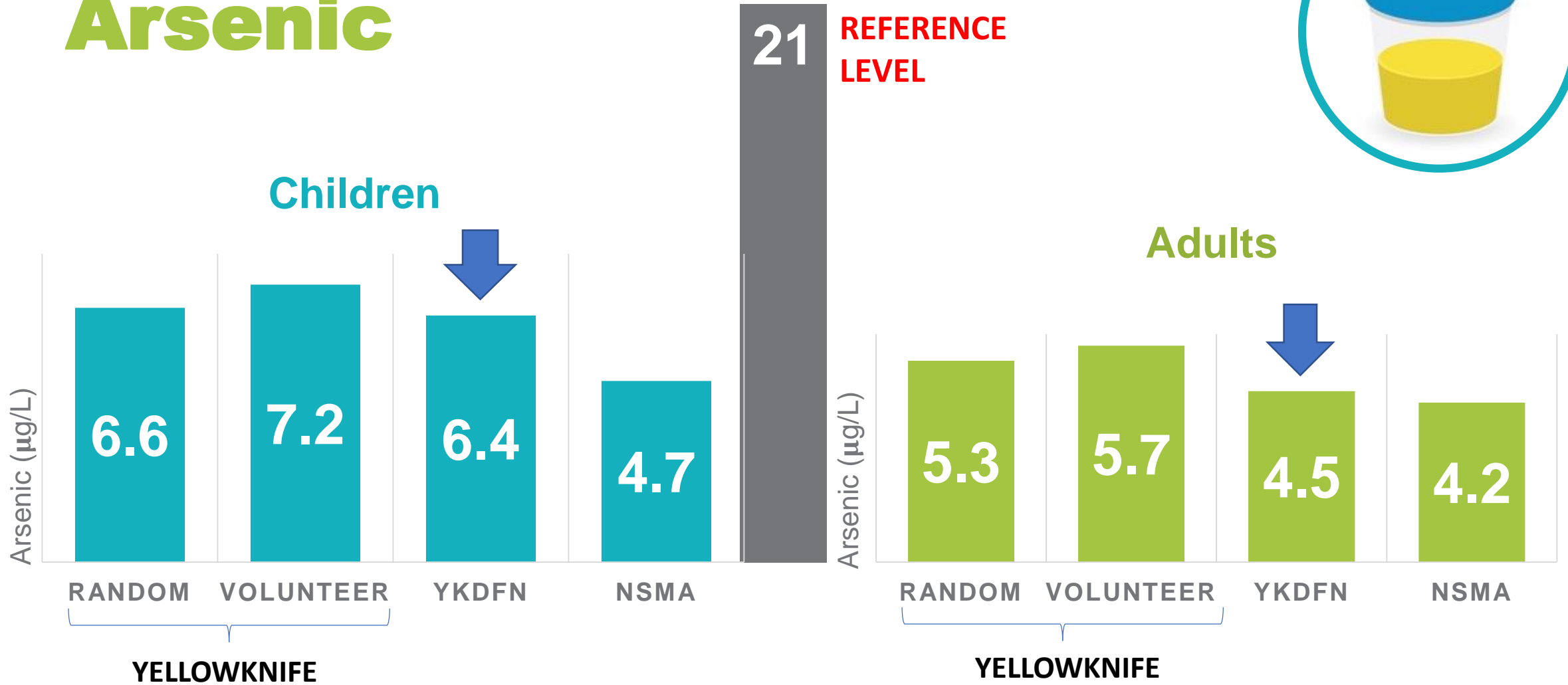


How does Yellowknives Dene compare to the other populations tested in Yellowknife?



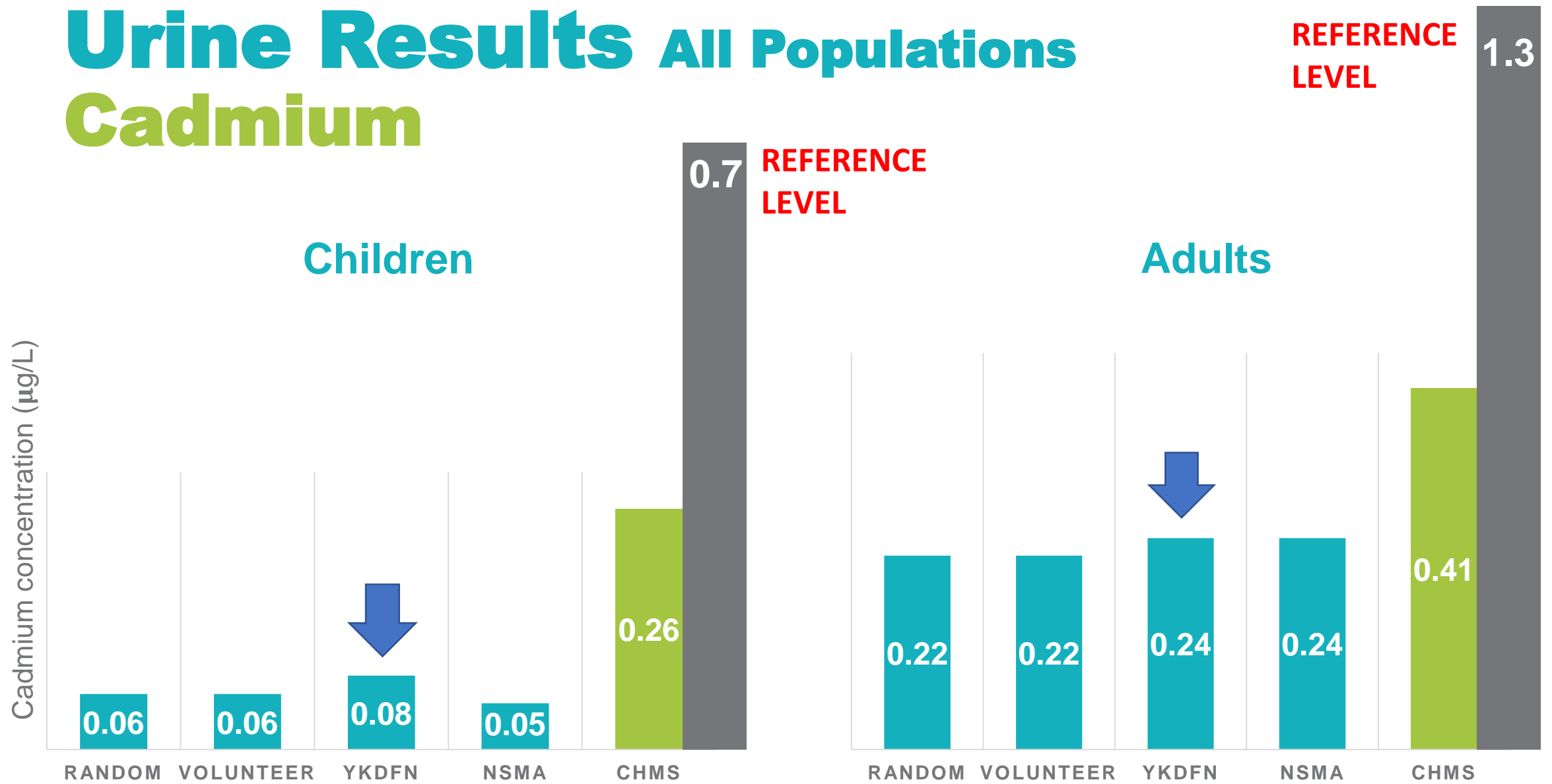
Urine Results All Populations

Arsenic



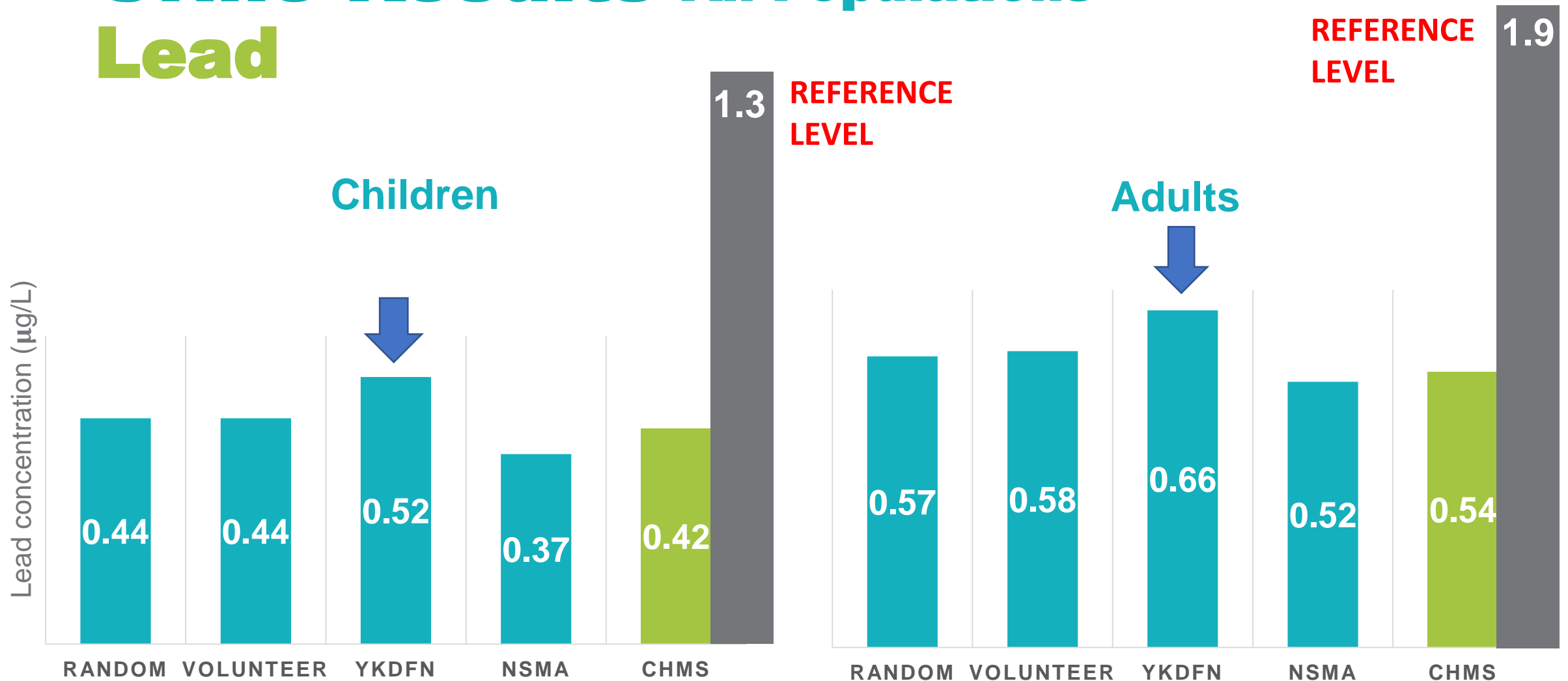
Urine Results All Populations

Cadmium



Urine Results All Populations

Lead



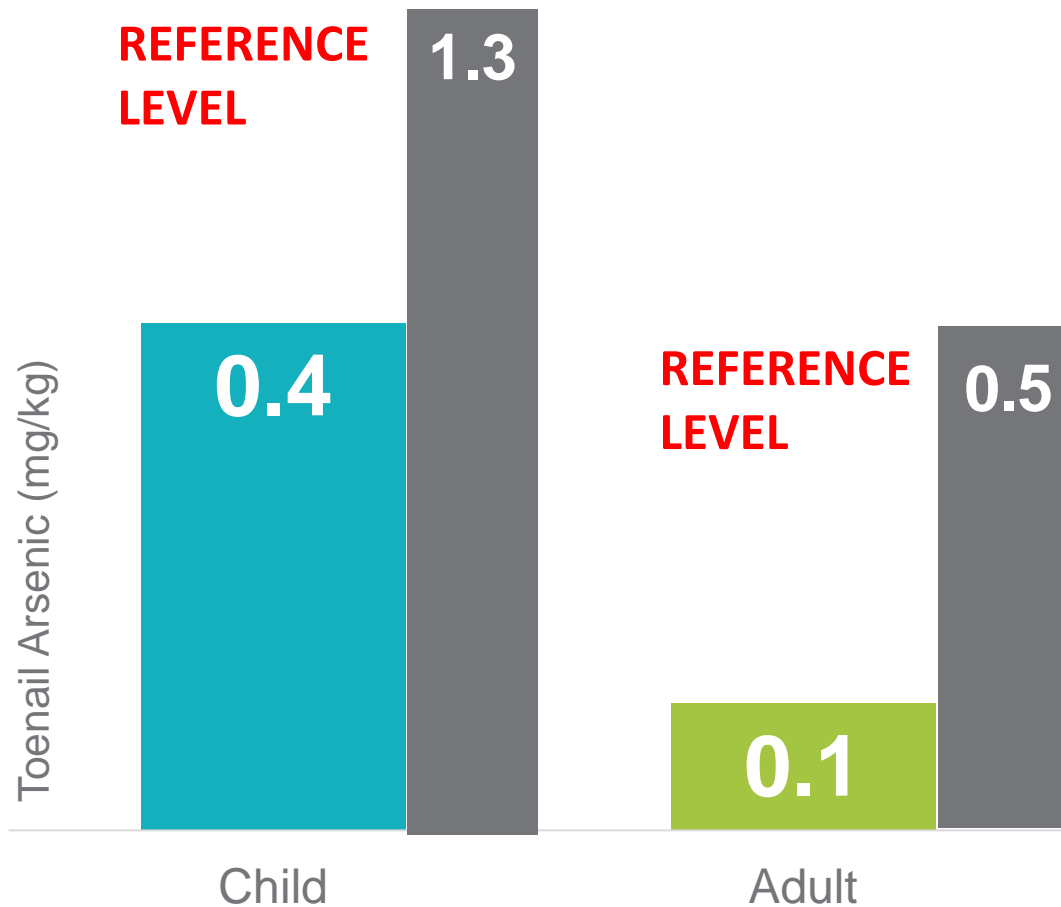
Anyone above the reference level for arsenic or lead

- **Follow-up with nurse practitioner**
- **Answer additional questions**
- **Provide additional samples**

The higher result does not mean that your health is at risk.



Toenail Results All Populations

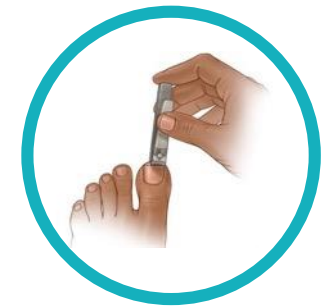


- CHMS has NO toenail reference level so we compared to our study data.
- These findings are comparable to other old mining towns in Arizona, Australia and the United Kingdom.

A higher result does not mean that your health is at risk.



Toenail Results All Populations



Child toenail arsenic was **higher** than adults.

Toenail arsenic was **higher** in Wave 2 (Spring) participants than Wave 1 (Fall).

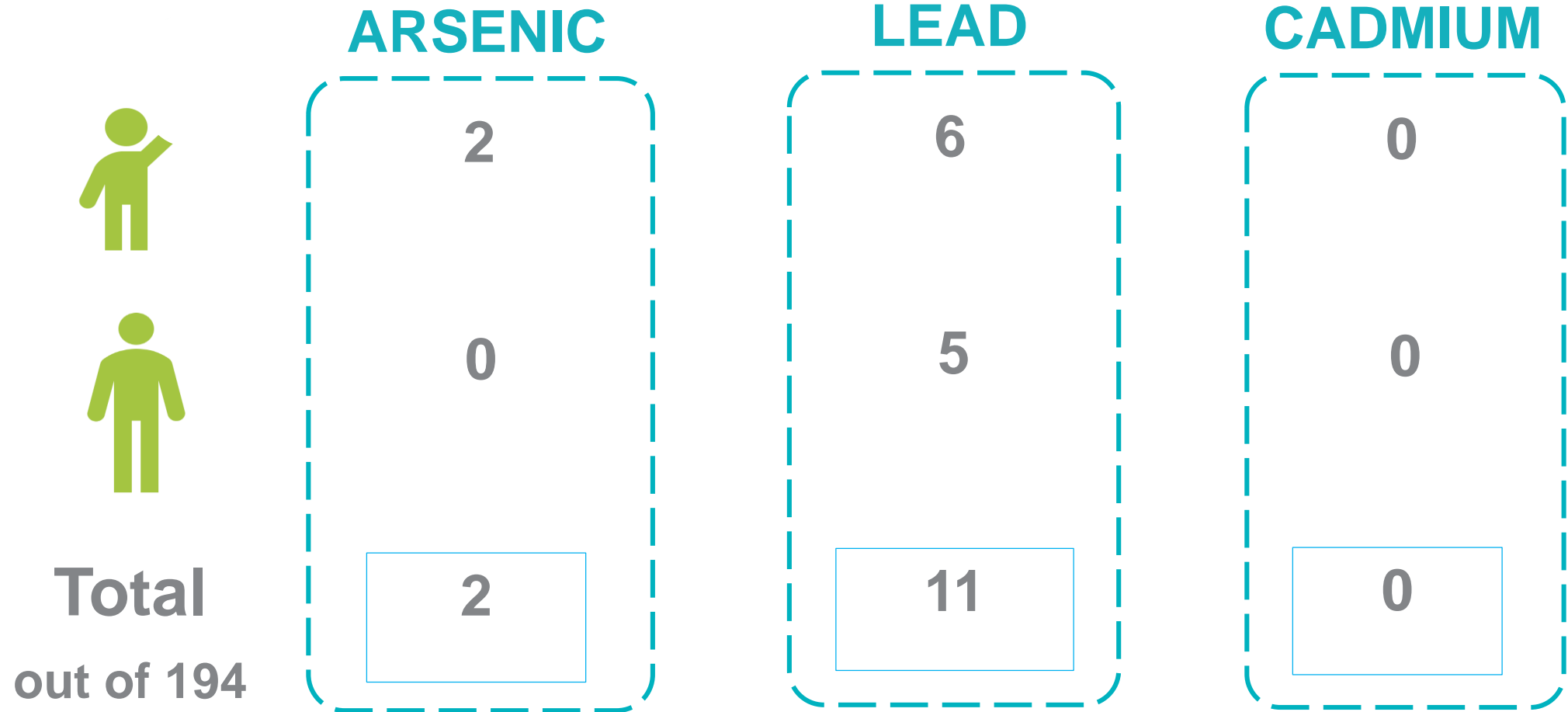


Number of Yellowknives Dene above Reference Levels



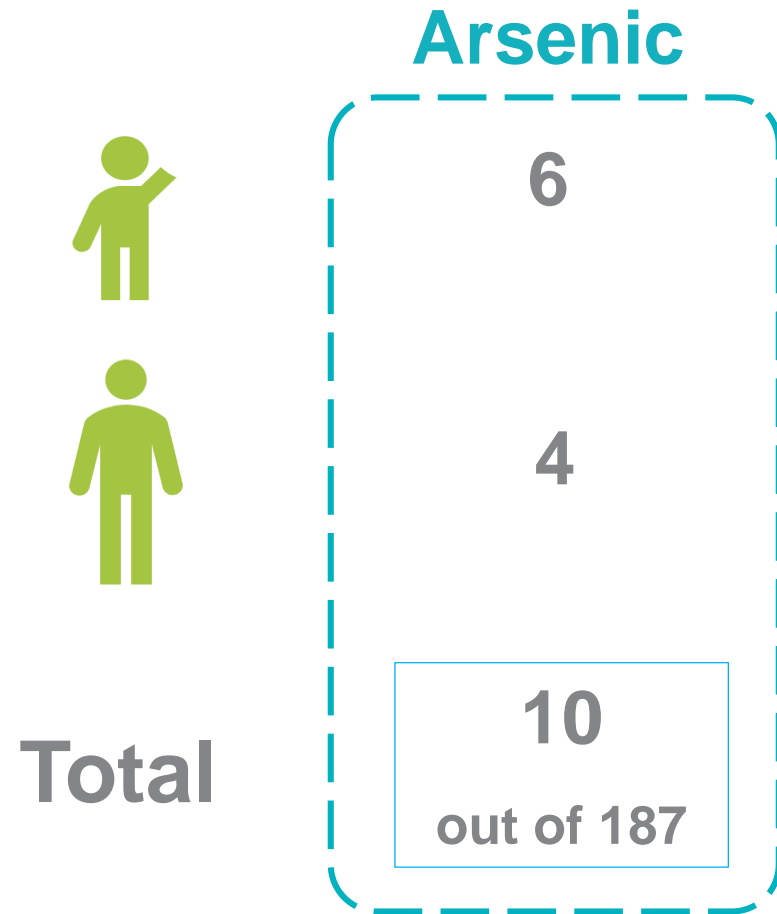
Higher than reference level in URINE

Yellowknives Dene First Nation



Higher than reference level in TOENAIL

Yellowknives Dene First Nation



A higher result does not mean that your health is at risk.



What is next?

More results to come in 2020



**More Testing
of Toenails**



**Diet and
lifestyle
factors**



**Genetic info
related to
arsenic**



**Medical
History**



HEALTH EFFECTS
MONITORING PROGRAM

What is next?

Timeline



Contact Us

Project Leader

Dr. Laurie Chan

University of Ottawa

Phone: (613) 325-9080

Email: ykhemp@uottawa.ca

Project Manager

Renata Rosol

University of Ottawa

Cell: (613) 325-9080

Email: ykhemp@uottawa.ca

Follow up appointment with nurse:

Call: (867) 445-1574

Email: ykhemp@uottawa.ca

YKHEMP Office

5112 52nd Street, main floor

** Yellow building passed Fiddles and Stix*

Check out our website!

www.ykhemp.ca



HEALTH EFFECTS
MONITORING PROGRAM