



Evaluation of Exposure

- **Individual Environmental Exposure Results Release and Response**
 - Re-cap of field work
 - Overview of notifying individuals (including Public Health Role)
 - Current activities (analysis)
 - Next steps (integration with HHRA, community reporting)

Community Advisory Committee Meeting, Tuesday, December 1, 2009

Re-cap- purpose of the study

- Preliminary info from the HHRA for the Flin Flon area indicated that further information would assist to fully understand exposure to potential human health risks associated with some metals in the community
- The most direct way to obtain additional information on human health risks is to assess human exposure through biological samples (e.g. blood, urine)
- This additional information will be used to supplement the HHRA

The study is looking at 3 metals

- The metals that are being measured are **lead, total and inorganic arsenic** and **inorganic mercury**. The reason for choosing these is that the Human Health Risk Assessment will benefit from some additional information for these three metals. The study is investigating the following questions:
 - *What is the current level of exposure in the bodies of the child population in the Flin Flon Area?*
 - *Do Flin Flon area children have higher arsenic, lead, and/or inorganic mercury levels than residents living in other parts of Canada?*
 - *Are there any potential health risks from these levels of exposure?*
 - *What personal factors are associated with the levels of exposure (e.g., place of residence, parent's place of work, level of COC in soil, age, gender, diet, personal habits, etc.)?*

Study focus on children

- Exposure will be more apparent among children because:
 - Children are potentially exposed at higher levels because they eat, drink and breathe relatively more than adults when you take into account their body size.
 - Behaviour and habits are also important. Children's normal activities, such as putting hands in their mouths or playing on the ground, create additional opportunities for exposures.
- In short, if the average exposure levels in children are not elevated, it would be unlikely for other age groups to have elevated levels from just living in an exposed community (and not through their occupation).

How the study was implemented

- **Research team-** led by Dr. Murray Lee (Habitat Health Impact Assessment), in partnership with Intrinsic, Goss Gilroy, and Environmental & Occupational Health Plus (EOHP). Selected for their experience in large-scale field studies on human health (medicine and epidemiology) and toxicology.
- **Oversight-** Technical Advisory Committee and Community Advisory Committee.
- **Review-** Local health authorities and independent scientific reviewers familiar with these types of studies who were not part of the study team.
- **Funding-** As with the Flin Flon Soil Study, Hudson Bay Mining and Smelting is paying for costs associated with this study. HBMS does not have input into the study design, analysis, or interpretation.

Re-cap of study activities to date

- Through September and October 2009 the study team conducted interviews with 251 households.
- Data collected from 447 individuals.
- 377 urine samples, 202 blood sample
- Urine analyzed for arsenic (inorganic, and total) and inorganic mercury.
- Blood was analyzed for lead.

Current Activities

- Notification of study results - individual results (now) followed by community results (with HHRA in early spring)
- Parent/guardian will receive a letter with child's results from the urine/blood tests
- Letters will start being sent week of Dec 7th

Follow-up activities – individual results

- Some children being referred to physician for additional follow-up
 - 3% for arsenic, 15% for lead, 0% for inorganic mercury
- Referrals based on reference values established at the beginning of the study
- Reference values are precautionary – purposefully set them low to err on side of caution
- Likely first step for follow-up is re-testing using more extensive tests not appropriate for community study
 - venous blood, 24-hour urine collection
- Public Health role in follow-up (MoHs)

Community results

- Questions about community results- We always have individual level results first and then it takes quite a bit of work to produce community levels results
- Next step is to analyze community results – integrated with HHRA results
- Address the following questions:
 - *What is the current level of exposure in the bodies of the child population in the Flin Flon Area?*
 - *Do Flin Flon area children have higher arsenic, lead, and/or inorganic mercury levels than residents living in other parts of Canada?*
 - *Are there any potential health risks from these levels of exposure?*
 - *What personal factors are associated with the levels of exposure (e.g., place of residence, parent's place of work, level of COC in soil, age, gender, diet, personal habits, etc.)?*

Addressing questions

- If at any point a CAC member is not sure of an appropriate response to questions contact the study team at 204-271-3792.