

Hudson County Chromium Exposure Route and Pathway Investigation

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EOHSI Study Personnel

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Human Exposure Science

Our Division's Operating Definition of Human Exposure Science: studies human contact with chemical, physical or biological agents occurring in their environments, and advances knowledge of the mechanisms and dynamics of events either causing or preventing adverse health outcomes.*

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Definitions

Exposure

Occurs when a person comes into contact with a chemical, biological or physical agent.

Exposure pathway

Is how the substance moves from the source to people.

Exposure route

How a substance contacts the body (inhalation, ingestion, dermal)

Background

- Many chromium waste sites are located in Hudson County, NJ.
 - ✦ Only certain types of chromium may cause illnesses, including cancer.
 - ✦ In the past it was difficult to determine which type of chromium was present.
- Some chromium waste sites were capped.
- There are concerns that capped sites cause exposure to residents and about what type and how much chromium is present in homes.

Results of Previous Studies

- Some people were exposed to chromium.
- Removal and containment of soils containing chromium at residential sites lowered levels in household dust and participant's urine.
- Measurement of chromium in household dust is a good way to determine if there is **potential** exposure to chromium in the home.

Goals of the Current Study

- Determine if chromium is present in homes and use improved analysis to identify the type of chromium
 - ◆ Hexavalent – lung carcinogen
 - ◆ Total chromium – hexavalent and trivalent
- Identify the pathways of exposure
 - ◆ Air
 - ◆ Direct contact & track-in of dirt or dust
 - ◆ Leaching out of sites

Need for Community Input

- Identify the sites of concern
 - ✦ Site conditions observed by residents
 - ✦ Conditions observed in surrounding homes
 - ✦ Changes in the community and site conditions since the site was first identified
- Conduct sampling
 - ✦ Volunteer for in-home sampling

Identify Sites of Concern for Residential Exposure

■ Review available data

- ◆ Site size and status
- ◆ Concentrations of chromium
- ◆ State of remediation
- ◆ Concentration of homes around the site

■ Information from the Community

Sampling

- Air sampling on or near the waste sites
- Indoor dust sampling in volunteer homes near Chromium sites

Community Indoor Sampling

- Contact the residents
- Select a group of volunteers
- Complete questionnaires and in-home dust sampling

Home Visit – 1 Hour

- Questionnaire
- Dust collection – **undisturbed** surfaces from one or more of the following locations
 - ◆ Windowsill facing the waste site
 - ◆ Main living area
 - ◆ Basement

Analyses

■ Dust Samples

- ✦ Type of Chromium
- ✦ Amount of Chromium

■ Questionnaires

- ✦ Identify Exposure pathways
- ✦ Indoor Chromium contamination
- ✦ Other sources of Chromium

Residential Results will be Presented to:

Participants

- Individual results from his/her home
- Comparison to pooled results

State & Community Groups

- Pooled results from home sampling
- General Statistical Analyses

Questions

- How much does sampling cost?
 - ✦ There is no cost to have your home sampled.
- When do I get results?
 - ✦ Because many homes will be sampled, it will take several months to analyze all the samples.

If we find high chromium in homes

■ Participant

- ✦ It means that there is a **potential** for exposure.
- ✦ We may ask for permission to take more samples.
- ✦ Using the pathway information, we will make recommendations about some steps you can take to reduce **potential** exposure **until the exposure pathway is stopped at the source.**

If we find high chromium in homes

■ State

- ✦ The site(s) near the homes is (are) a source of exposure.
- ✦ Actions must be taken on the site to prevent exposure.
- ✦ Follow-up studies may be needed to assure the community that the exposure has been stopped.

Interested Residents

- Sign-up sheet or,
- Toll-free number: 866-855-2712
 - ✦ Recording
 - ✦ Leave your name, phone number
 - ✦ English or Spanish