

ASARCO Hayden Smelter Site, Hayden and Winkelman, Arizona

Summary of ATSDR's 2017 Arsenic Exposure Investigation

December 2019

People in Hayden and Winkelman may be exposed to lead and arsenic from smelting activities and other sources in their environment. In 2015 ATSDR provided blood and urine testing for residents. In 2017 we offered follow-up urine arsenic testing to people in households that participated in 2015. Our goal in 2017 was to find out arsenic levels in participants' urine when air quality was typical for the community. This is a summary of the 2017 investigation report.

What are the community's concerns?

Community members have health concerns about historic and ongoing exposure to lead, arsenic, and other mine and smelter-related contaminants. Community leaders also have concerns about keeping track of environmental and health work in Hayden and Winkelman and reviving the local economy.

The Bottom Line

- Arsenic levels in the 33 Hayden and Winkelman residents ATSDR tested in 2017 were similar to U.S. population levels.
- Residents remain at risk for exposure to arsenic and lead in the community.
- Organizations and community members should continue taking steps to reduce exposure to lead and arsenic.



A playground next to the ASARCO Hayden Plant in Hayden, AZ.

About these tests and results

These tests tell us how much arsenic was in participants' bodies at the time of testing, but the amount of arsenic in a person's body can change quickly. Also, the results might not represent the overall community.

What did ATSDR do?

In October 2017 ATSDR offered follow-up urine arsenic testing to households that participated in the 2015 investigation. We focused on testing residents at higher risk for health effects from arsenic exposure: children, adolescents, and women of child-bearing age.

- We tested a total of 33 Hayden and Winkelman residents from 13 households.
- Just over half (17 of 33 or 52%) of 2017 participants received arsenic testing during the 2015 exposure investigation.
- ATSDR sent result letters to each participant in December 2017.

ATSDR used measurements of arsenic in Hayden's air from 2017 to find out if air quality was typical for the community during the testing.

In 2018, ATSDR helped a group of organizations working on environmental health issues in the community to begin sending regular email updates to community leaders.



**U.S. Department of
Health and Human Services**
Agency for Toxic Substances
and Disease Registry

What did ATSDR find?

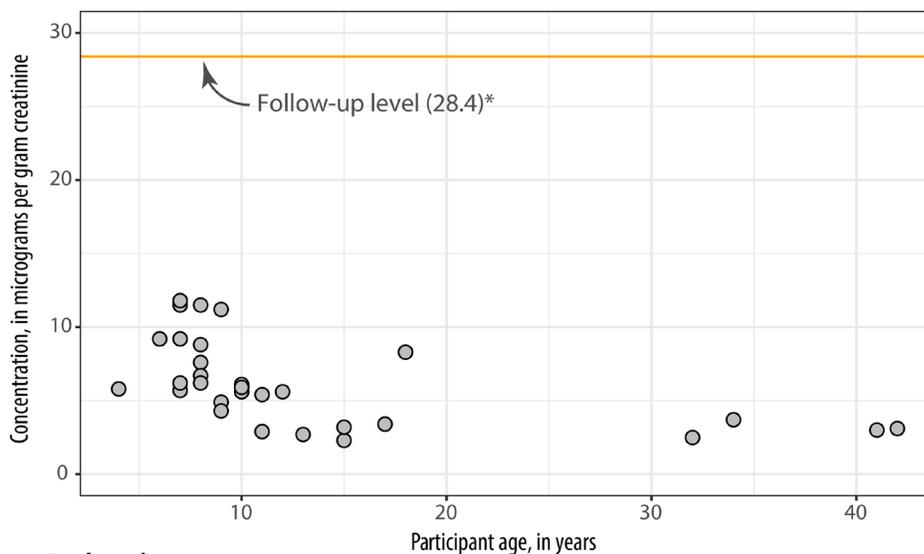
Arsenic levels in the Hayden and Winkelman residents ATSDR tested in 2017 were similar to levels found in the U.S. population.

- All participants had total arsenic levels below ATSDR's follow-up level (28.4 micrograms arsenic per gram creatinine, or mcg/g Cr). The highest value was 11.8 mcg/g Cr (Figure 1).
- Total arsenic summary values for child and adolescent participants were similar to U.S. population levels (Figure 2).
- Many participants had no detectable levels of some of the inorganic-related arsenic species measured.
- Individual participants' arsenic levels were generally lower in 2017 than 2015.
- Arsenic levels in air were typical for the community before and during the 2017 urine testing. In 2015, the smelter was shut down for maintenance during ATSDR's testing, reducing the levels of arsenic and lead levels in air.

Residents remain at risk for exposure to arsenic and lead in the community.

- People in Hayden and Winkelman might be exposed to lead and arsenic in outdoor air, in mine waste piles, and in soil in some non-residential locations. Also, they may be exposed to lead from paint in older housing.

Figure 1: Individual total arsenic in participants in ATSDR's Exposure Investigation



Explanation

- ATSDR Exposure Investigation follow-up level (28.4 micrograms per gram creatinine)
- Total urinary arsenic (creatinine-corrected) results for an individual participant

* The ATSDR Exposure Investigation follow-up level is based on the lowest age-specific 95th percentile value from reported values for the U.S. population from 2010-2011 (CDC 2018).

Next Steps

ATSDR recommends that organizations and community members continue taking steps to reduce exposure to lead and arsenic in the community.

ATSDR recommends that EPA, ADEQ, and ASARCO continue

- Implementing the 2015 EPA/ASARCO consent decree.
- Environmental sampling and clean-up efforts in Hayden and Winkelman.

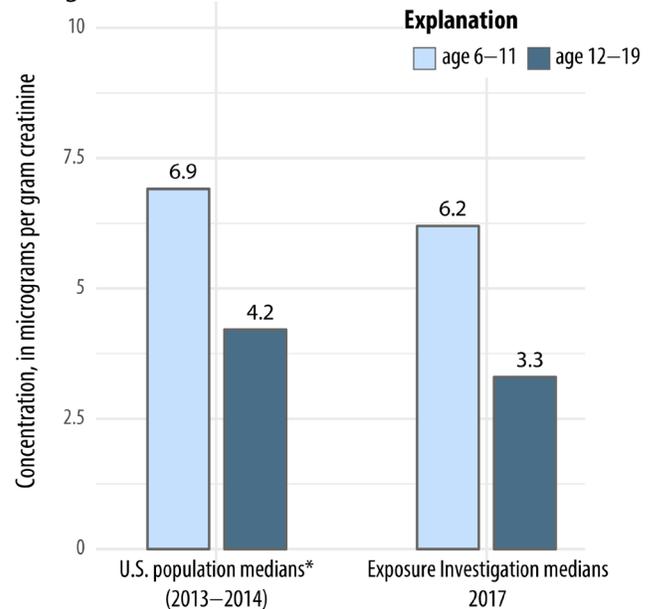
We recommend that community members

- Follow the tips in the box below to keep dirt and dust from getting into your body.
- Sign up for the free home lead-based paint testing and abatement project with Central Arizona Governments. Contact Alan Urban at 480-474-9300 or aurban@cagaz.org.
- Make sure children have regular follow-up blood lead testing, as recommended by their health care provider or state and local health departments. Yearly or more frequent testing may be necessary for children under six years old or children who have previously had a confirmed blood lead level greater than or equal to 5 micrograms per deciliter ($\mu\text{g}/\text{dL}$).
- Maintain healthy eating habits for your family; people who eat healthy diets rich in vitamin C, iron, calcium, and zinc absorb less lead.

How do I learn more about ATSDR's work in Hayden and Winkelman?

- For more details, see the full report "ASARCO Hayden Smelter Site 2017 Urine Arsenic Exposure Investigation" available at <https://www.atsdr.cdc.gov/HAC/PHA/HCPHA.asp?State=AZ>
- Call ATSDR's Region 9 office director, Libby Vianu, at 415-947-4319 and LVianu@cdc.gov or our toll-free number at 1-800-CDC-INFO.

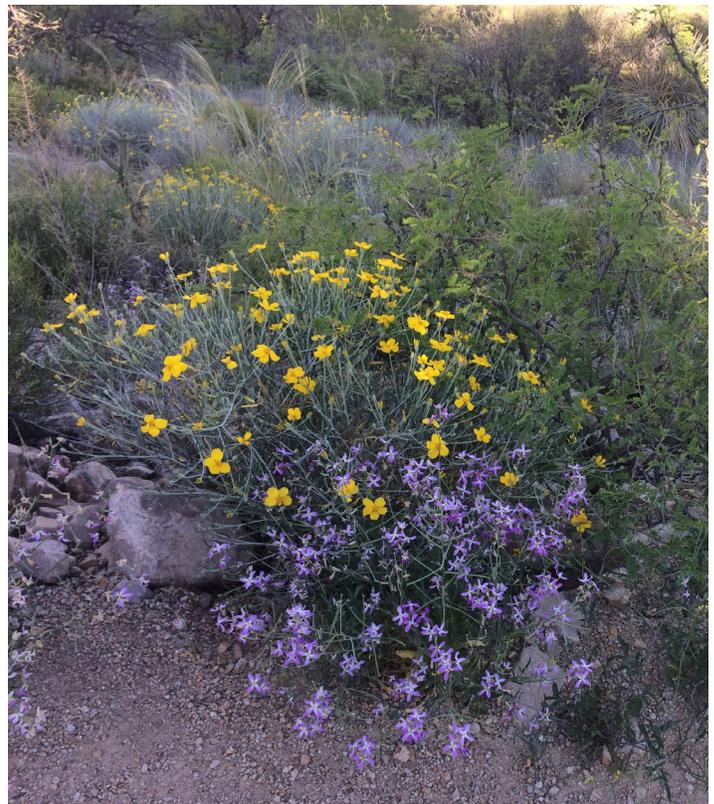
Figure 2: Urinary total arsenic levels by age group for the U.S. population and participants in ATSDR's 2017 Exposure Investigation



* National Health and Nutrition Examination Survey (NHANES) 2013–2014 (CDC 2018)

† The ATSDR Exposure Investigation follow-up level is based on the lowest age-specific 95th percentile value from reported values for the U.S. population from 2010–2011 (CDC 2018).

Note: The 20–44 years age group is not displayed because ATSDR only tested 4 people in this age group and the corresponding NHANES age group is different (20 and older).



Community members can keep dirt and dust from getting into their bodies by following these tips

Outside

- Don't play in arroyos or on waste piles.
- Stay away from railroad tracks in Hayden.
- Do not trespass on mine or smelter property.

At Home

- Wipe shoes on a doormat and remove shoes before entering your house.
- Wet-mop or wet-wipe floors, windowsills, counters and hard-surface furniture every 2-3 weeks.
- Make sure your child does not chew on surfaces painted with lead-based paint.
- Wash pets that spend time outside and inside your home at least every 2-3 weeks.

Keep things clean

- Wash things children put into their mouths, such as pacifiers, bottles, and toys whenever they fall on the floor or ground.
- Wash your hands and your children's hands before eating and after being outside.
- Wash fruits, vegetables, and root crops (like potatoes) before preparing them to eat.

At work

- If you could be exposed to lead or arsenic in your workplace, change your clothes at work before returning home or immediately after arriving home.
- Wash your work clothes separately from the clothes of other family members.

About ATSDR

The Agency for Toxic Substances and Disease Registry (ATSDR) is a federal public health agency of the U.S. Department of Health and Human Services. <https://www.atsdr.cdc.gov/>

For more information

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