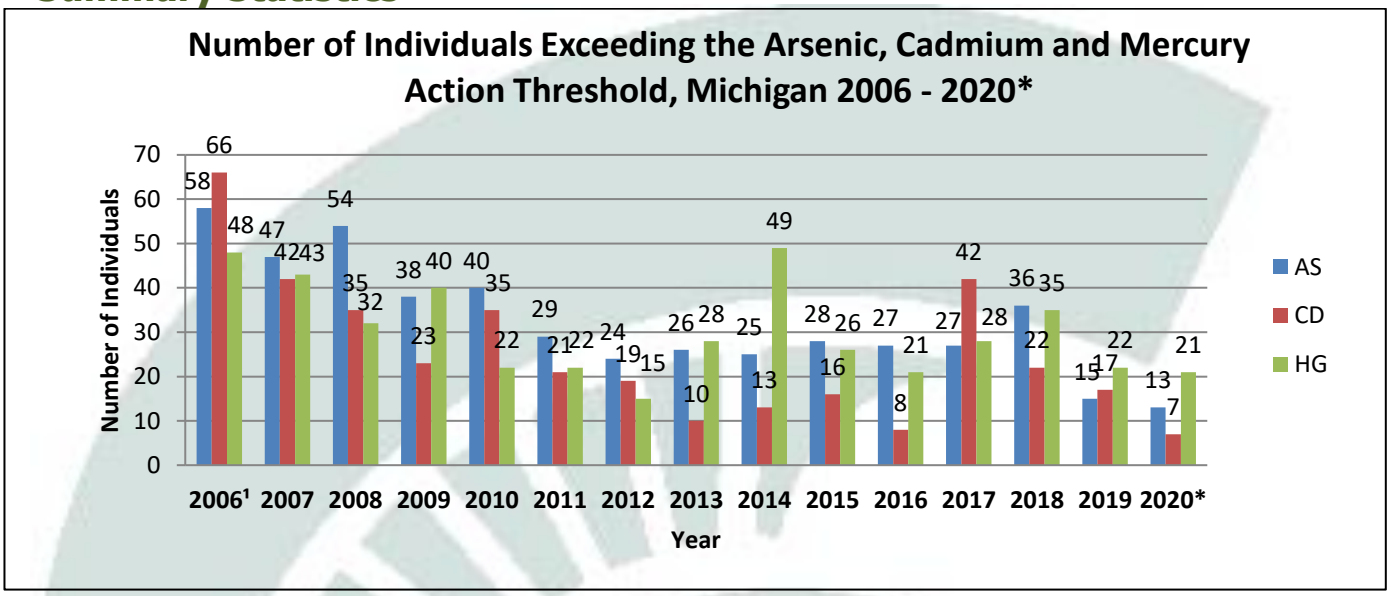
Heavy Metals Surveillance in Michigan

Additional Information and Data Available at: www.oem.msu.edu

Summary Statistics



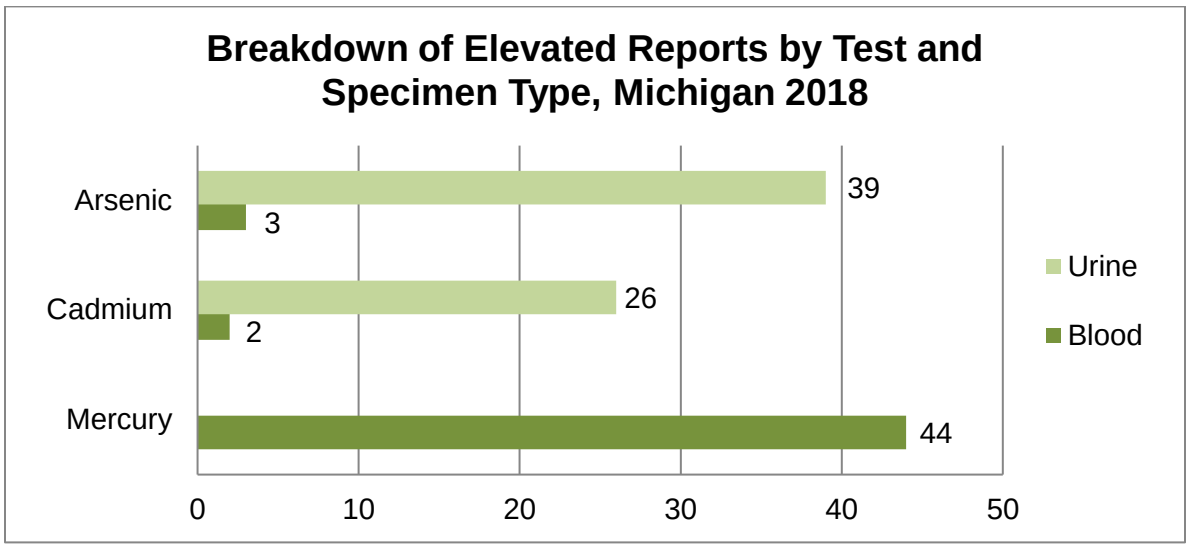
¹The reporting period for the year 2006 spans 10/25/2005 through 12/31/2006.
AS – Arsenic Blood Threshold Level (TL) is >70 µg/L. Urine TL in Adults is ≥100 µg/L and in Children ≥50 µg/L.
CD – Cadmium Blood TL is >5 µg/L. Urine TL is >2 µg/L or >3 µg/g creatinine.
HG – Mercury Blood TL in Adults is >15 µg/L and in Children >10 µg/L. Urine TL in Adults is >20 µg/L or >35 µg/g creatinine and in Children >10 µg/L.
*2020 preliminary data as of October 19th, 2020

Surveillance Reporting Requirements and Rationale

In September 2005, the Michigan Department of Health and Human Services (MDHHS) promulgated rules requiring clinical laboratories to report all test results of arsenic, cadmium, and mercury in blood and urine. The reporting requirement allows for the identification and prevention of the impacts on human health of exposure to these heavy metals. Individuals with results exceeding action thresholds are interviewed to determine the source of exposure to the metal and assess if public health interventions are warranted. This surveillance system is administered by Michigan State University as a bona fide agent of the State.

2018 Highlights

- 114 reports with levels above the action threshold were received from seven laboratories.
- 92 individuals had a result that exceeded one of the established action thresholds, including five children.
- Sixty-seven percent of the individuals were male.
- When the source of exposure was determined, fish consumption was the likely cause of elevated mercury in 46.2% of tested individuals and work exposure was the source of elevated cadmium in 23.1% of the individuals.



Examples: Heavy Metals Poisoning Events

- 2007 - Ten individuals working at a facility that performed cadmium plating were exposed to elevated cadmium air levels.
- 2007 - Five individuals employed by an electrical switch and relay manufacturer had elevated mercury blood levels.
- 2008 - Six individuals working in a different cadmium plating department than the one identified in 2007 had elevated cadmium urine levels.
- 2009 - One individual working for a recyclable material wholesaler had an elevated blood mercury level.
- 2010 - One individual eating tuna and salmon a few times a week had an elevated blood mercury level.
- 2011 - One individual eating shark, swordfish and tuna once a week had an elevated blood mercury level.
- 2012 - One individual eating tuna up to ten times a day as a part of his body building diet had an elevated blood mercury level.
- 2013 - One individual working in a college lab unintentionally ingested mercury and had an elevated blood mercury level.
- 2014 - One individual who ate salmon and trout four times a week from Lake Michigan had an elevated blood mercury level.
- 2015 - One individual, who has spent the last 15 winters in a fishing village off Trinidad and Tobago, ate ocean fish including king fish, wahoo, mahi mahi, blackfin tuna and grouper had an elevated blood mercury level. He also consumed tuna and salmon a few times a week during the rest of the year.
- 2015 - One individual working for a recyclable material merchant wholesaler had an elevated urine mercury level.
- 2016 - Two children, who used house well water had elevated arsenic urine levels.
- 2017 - One individual working at a nonferrous foundry had an elevated cadmium urine level.
- 2018 - One individual, who ate salmon, swordfish and tuna a few times a week, had an elevated blood mercury level.