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Surveillance for Elevated Blood and Urine Arsenic Levels in Michigan, 2006–2024

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Abstract **Adverse health effects can result from human exposure to arsenic, which occurs in drinking water and chemical releases from industrial practices. Two types of arsenic compounds exist: inorganic (the toxic species) and organic (the nontoxic species). In 2005, Michigan began requiring clinical laboratories that conduct business in the state to report all blood and urine arsenic results. The source of exposure was investigated for levels that exceeded action thresholds and categorized as a work-related or nonwork-related exposure. Between 2006 and 2024, 554 individuals with elevated blood/urine arsenic tests were identified; 553 (99.8%) individuals had nonspeciated test results and 1 (0.2%) individual's test was classified as inorganic. Blood arsenic levels ranged from 71 µg/L to 537 µg/L, and urine arsenic levels ranged from 53 µg/L to 2,981 µg/L. Of the 209 individuals with an identified exposure source, 29 (13.9%) had a work-related exposure and 180 (86.1%) had a nonwork-related exposure. Seafood consumption accounted for 157 (87.2%) of the nonwork exposures. Other nonwork exposures included drinking water, supplements, pesticides, rice, and wine. Laboratory tracking of elevated arsenic levels provides a way to identify uncommon exposure sources, monitor state trends, and educate the medical community on how to order diagnostic tests for arsenic. Furthermore, tracking can result in ways to inform the public on how exposure occurs and how to prevent arsenic exposure.**

Keywords: arsenic, heavy metals, environmental health, occupational health, laboratory tracking, public health surveillance

Introduction

Arsenic is a naturally occurring element found in water, soil, rocks, and minerals. It can also be released into the environment through industrial practices, including mining and ore smelting, fossil fuel combustion, and historical pesticide use. There are two different types of arsenic compounds: inorganic and organic. Arsenic in combination with elements such as oxygen, sulfur, and chlorine is referred to as inorganic arsenic, whereas arsenic combined with carbon and hydrogen is called organic arsenic (Agency for Toxic Substances and Disease Registry [ATSDR], 2023). Inorganic arsenic is found in copper and lead ores and is released into the environment when these ores are heated by smelters or as a byproduct of coal-fired power plants. From 1983 to 1985, the U.S. produced between 2,200 and 7,300 metric tons of inorganic arsenic before domestic production of arsenic ceased in 1985 and began to rely on imports (ATSDR, 2023). Inorganic arsenic is the toxic form of arsenic that can lead to adverse health effects including nausea, vomiting, diarrhea, peeling of the skin, changes in skin pigmentation, and tingling in the hands and feet; exposure to this form of arsenic can result in an increased risk of cancers of the bladder, skin, and lungs (ATSDR, 2023; Khan et al., 2022; Meliker et al., 2006)

In extreme cases, ingestion of >60,000 ppb of inorganic arsenic in water can result in death (ATSDR, 2023). The minimal lethal oral dose of inorganic arsenic has been estimated to be 130 mg, or 2 mg per kilogram of body weight (ATSDR, 2023). Arsenic has a long history of being used as a poison dating back to ancient Greek and Roman civilizations in the first century (Paul et al., 2023). Despite its toxicity, arsenic has also been used historically as a medicine, called Fowler's solution, to treat conditions such as psoriasis, eczema, asthma, rheumatism, syphilis, tuberculosis, and cancers (Paul et al., 2023). In addition to its uses as a poison and a therapeutic, arsenic has been used as a pesticide and a wood preservative, and it is still used in some industrial processes.

Human exposure to arsenic occurs primarily from diet, drinking water, and—to a lesser extent—inhalation of arsenic dust. Fish absorb arsenic from their environment (i.e., water), and the arsenic accumulates in their tissue and leads to human exposure to arsenic on consumption of the fish. Shellfish, especially, absorb arsenic from their environment. Approximately 90% of the arsenic found in fish and shellfish, however, is an organic type of arsenic called arsenobetaine, which is considered nontoxic to humans (ATSDR, 2023; Luvonga et al., 2020; Wolle et al., 2019).

Arsenic released through industrial practices can expose employees who work in such facilities—as well as people who live in the surrounding communities—to arsenic via inhalation of arsenic dust in the air (ATSDR, 2023). Occupations and industries that can

 https://doi.org/10.70387/001c.160021

expose workers to arsenic include coal burning power plants, mining and smelting, agricultural pesticides, glass and ceramics manufacturing, production of lead acid batteries, and the manufacturing of semiconductor chips and circuit boards (Baker et al., 2018).

Groundwater can be contaminated with arsenic as a result of natural weathering of minerals from rock formations, volcanic activity, and anthropogenic processes such as smelting and fossil fuel burning (ATSDR, 2023). Additionally, agricultural areas where arsenic-containing pesticides were once applied (e.g., apple orchards) can have elevated levels of arsenic in the soil, affecting crops grown in these areas (ATSDR, 2023; Su et al., 2023). Using contaminated groundwater for crop irrigation can also increase the burden of arsenic present in vegetables and grains (Shrivastava, 2021).

A study conducted among residents in 11 Southeastern Michigan counties by Meliker et al. (2006) identified two primary contributors to inorganic arsenic. The first major contributor was contaminated drinking water from sandstone bedrock aquifers, with arsenic concentrations as high as 335 ppb, which is nearly 7-times higher than the 50-ppb standard set by the U.S. Environmental Protection Agency (Meliker et al., 2006; Tiemann, 2010; U.S. EPA, 2025). The second major contributor to arsenic exposure in Michigan was rice consumption, because rice more readily absorbs inorganic arsenic than do other grains (Meadows, 2014; Meliker et al., 2006). Compared with white rice, brown rice has higher concentrations of inorganic arsenic because the two outer layers (the bran and germ) that contain the arsenic are removed during the refining process of white rice (Su et al., 2023). The potential for inorganic arsenic exposure from rice is particularly high in South Asian countries, such as Bangladesh and India, where rice is a staple food item (Khan et al., 2022; Shrivastava, 2021). The burden of exposure in these countries is also compounded by the high levels of arsenic present in the groundwater (ATSDR, 2023; Shrivastava, 2021).

Bangladesh is the country most affected by arsenic-contaminated groundwater, with 50 million residents (approximately one third of the population) at risk of exposure (Ahmad et al., 2018). In the mid-20th century, tubewells were installed across the country in response to the high rates of cholera and other diarrheal diseases that occurred as a result of drinking surface water from nearby rivers, lakes, and ponds. In 1993, the tubewells were first tested for arsenic. Ongoing testing in the late 1990s revealed that 29% of the tubewells were contaminated with arsenic (Ahmad et al., 2018, 2020). The permissible exposure limit (PEL) for arsenic in drinking water in Bangladesh is 50 ppb, whereas the PEL set by the World Health Organization is 10 ppb (Ahmad et al., 2018; World Health Organization, 2022). The majority of the tubewells in Bangladesh had arsenic concentrations ranging from 100 ppb to 300 ppb, although the highest concentration identified was 4,700 ppb (Ahmad et al., 2018). As a result of decades of drinking arsenic-contaminated water, people in Bangladesh have experienced adverse physical effects including reproductive complications, decreased cognitive function, hypertension, changes in skin pigmentation, peripheral neuropathy, non-pitting edema, gangrene, diabetes, peripheral vascular disease, and cancers of the skin and lungs (Ahmad et al., 2018, 2020; ATSDR, 2023).

Environmental regulations for arsenic in drinking water date back to 1942 when the U.S. Public Health Service set the drinking water standard for arsenic at 50 ppb, a standard that was later adopted by the U.S. EPA when the Safe Drinking Water Act (SDWA) was passed in 1975 (Tiemann, 2010). SDWA was amended in 2001, lowering the allowable level to the more stringent, current standard of 10 ppb (Tiemann, 2010).

Occupational regulations to limit worker exposure to arsenic are established by the Occupational Safety and Health Administration (OSHA), which set the PEL for inorganic arsenic at 10 $\mu g/m^3$ averaged over any 8-hr period in a 40-hr workweek (ATSDR, 2023). The National Institute for Occupational Safety and Health (NIOSH) recommends a stricter exposure limit of 2 $\mu g/m^3$ within a 15-min period (ATSDR, 2023).

This article summarizes the findings of ongoing laboratory tracking of elevated blood and urine arsenic testing results in Michigan.

Methods

In 2005, the Michigan Department of Health and Human Services (MDHHS), under the authority of the *Michigan Public Health Code*, implemented rules requiring clinical laboratories that conduct business in Michigan to report all blood and urine arsenic, cadmium, and mercury testing results. This rule was promulgated to improve tracking of environmental and occupational heavy metal exposures and protect human health. MDHHS delegated the Division of Occupational and Environmental Medicine at Michigan State University (MSU) to follow up on reports from laboratories to identify the sources of exposure. The healthcare professional who ordered the heavy metal test is required to provide to the clinical laboratory the specimen collection information, provider-specific information, and patient demographics. Clinical laboratories are required to report the blood or urine heavy metal results, patient demographics, laboratory-specific information, and employer information to MDHHS within 5 business days.

Action Thresholds

To prioritize follow-up on elevated results and ensure that potentially toxic levels were captured, action thresholds for arsenic exposures were established based on review of the medical literature that indicated the level at which adverse health effects begin to present. The blood action threshold for nonspeciated arsenic effects in adults and children was set at >70 µg/L. The urine action threshold for nonspeciated effects in adults was set at >100 µg/L, and the threshold was set at >50 µg/L in children (individuals <18 years).

For inorganic arsenic results in adults and children, the blood threshold was set at >35 µg/L, and the urine threshold was set at >50 µg/L. Follow-up was not conducted if the elevated arsenic level was known to be an organic form, because this type of arsenic is not considered toxic. Case follow-up was initiated for results that exceeded these thresholds.

Data Management

All results that exceeded the action thresholds were uploaded to a password-protected Microsoft Access database that included demographics, the name and address of the employer for work-related exposures, and information about the source of arsenic exposure. Results that were imported into the database were reviewed for completeness. For reports that were missing information, such as the ordering healthcare professional, requests for this information were sent to the clinical laboratory.

Case Follow-Up

For imported arsenic reports where the ordering provider was known, a request form was sent that asked the ordering provider (i.e., healthcare professional) to describe how their patient was exposed to arsenic. For individuals who had previous elevated results, this request was not repeated if the source had been identified in the preceding 5 years. If the report was missing the ordering provider, a request form was sent to the clinical laboratory to obtain the provider's name and any missing patient demographic information, including race and ethnicity, address, phone number, and employer. Any individual with an unidentified arsenic exposure was mailed a postage-paid postcard asking if they knew how their arsenic exposure occurred, with a request to return the postcard to MDHHS.

If the ordering provider did not know the source of exposure, or if the source provided by the patient or provider was not a likely source of arsenic exposure, or if the patient did not respond to three postcard mailings, then the individual was mailed a letter informing them that they would be contacted by phone for an interview. Information gathered from the phone interview included demographics, symptoms related to arsenic exposure, occupational history, and environmental history. After five attempts were made to reach the individual by phone on different days of the week and times of the day, the person was considered unreachable and the file was closed.

All information collected from the clinical laboratory, ordering provider, postcard, and interview was entered into the Microsoft Access database and a paper file was stored in a locked filing cabinet. The information from each of these sources, along with any information from the last 5 years, were taken into consideration when assigning the source of arsenic exposure.

The MSU Human Subjects Review Board exempted this project as public health activity.

TABLE **1**

Characteristics of Individuals With Elevated Arsenic in Michigan, 2006–2024

Characteristic	Total # (%)	Blood Tests # (%)	Urine Tests # (%)
Sex			
Male	329 (59.4)	5 (41.7)	324 (59.8)
Female	225 (40.6)	7 (58.3)	218 (40.2)
Age range (years) [a]			
<18	20 (3.6)	1 (9.1)	19 (3.5)
18–29	31 (5.6)	1 (9.1)	30 (5.6)
30–39	59 (10.7)	0	59 (10.9)
40–49	75 (13.6)	2 (18.2)	73 (13.5)
50–59	136 (24.7)	1 (9.1)	135 (25.0)
60–69	124 (22.5)	2 (18.2)	122 (22.6)
70–79	70 (12.7)	2 (18.2)	68 (12.6)
≥80	36 (6.5)	2 (18.2)	34 (6.3)
Source of exposure [b]			
Work	29 (13.9)	0	29 (14.1)
Nonwork	180 (86.1)	4 (100)	176 (85.9)
Arsenic level range (µg/l)			
50–99	16 (2.9)	5 (41.7)	11 (2.0)
100–149	243 (43.9)	3 (25.0)	240 (44.3)
150–199	110 (19.9)	1 (8.3)	109 (20.0)
200–249	61 (11.0)	0	61 (11.3)
250–299	39 (7.0)	0	39 (7.2)
300–349	19 (3.4)	1 (8.3)	18 (3.3)
350–399	18 (3.2)	0	18 (3.3)
400–449	7 (1.3)	0	7 (1.3)
450–499	8 (1.4)	0	8 (1.5)
500–549	11 (2.0)	2 (16.7)	9 (1.7)
≥550	22 (4.0)	0	22 (4.1)
Arsenic type			
Inorganic	1 (0.2)	0	1 (0.2)
Nonspeciated	553 (99.8)	12 (100)	541 (99.8)
Total	554 (100)	12 (2.2)	542 (97.8)

[a] Three individuals had an unknown date of birth.
[b] A total of 345 individuals had an unknown exposure source.

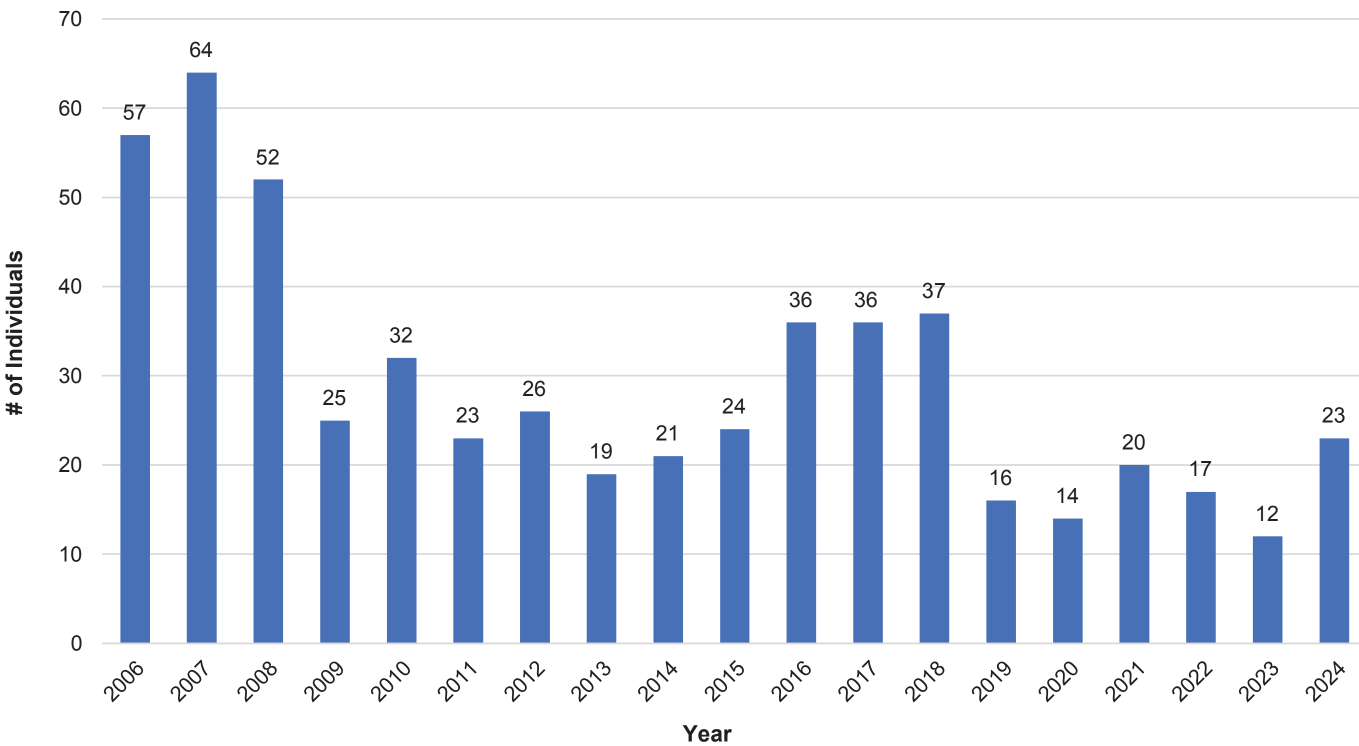
Results

In all, 554 individuals had 611 elevated blood or urine arsenic tests between 2006 and 2024. Of the 554 individuals, 329 (59.4%) were male and of the 551 people with a known date of birth, 531 (96.4%) were >18 years (Table 1). The total number of individuals with elevated blood or urine arsenic levels that exceeded the action thresholds has trended downward since the first reporting year (Figure 1). A slight increase in the number of individuals from 2016 to 2018 was noted, followed by a plateau from 2019 to 2024.

Of the 554 individuals, 12 (2.2%) had an elevated blood arsenic test and 542 (97.8%) had an elevated urine arsenic test (Table 1). There were 553 (99.8%) nonspeciated results and 1 (0.2%) inorganic arsenic result. The 12 blood arsenic tests ranged from 71–537 µg/L, with a median of 105 µg/L. The 542 urine test results ranged from 53–2,981 µg/L, with

FIGURE **1**

Number of Individuals Reported With Elevated Arsenic Levels Above Action Thresholds in Michigan, 2006–2024



Note. The reporting period for 2006 spans from 10/20/2005 through 12/31/2006.

a median of 157 µg/L. Elevated blood results in adults ranged from 71–537 µg/L, with a median of 97 µg/L; elevated urine results ranged from 101–2,981 µg/L, with a median of 160 µg/L. Urine results in children ranged from 53–347 µg/L, with a median of 63 µg/L. Only one child had an elevated blood arsenic level, which was 310 µg/L.

Among the 551 individuals with a known date of birth, individuals 50–59 years had the largest proportion of elevated arsenic levels (n = 136, 24.7%), and individuals <18 years had the lowest number of elevated levels (n = 20, 3.6%) (Table 1, Figure 2). The ages of the adults ranged from 18–91 years, with an average age of 56.1 years; the ages of the children ranged from 1–17 years, with an average age of 9.6 years.

Of the 209 individuals with an identified exposure source, 29 (13.9%) had a work-related arsenic exposure (Table 1, Figure 3). Of the work-related arsenic exposures, 9 (31.0%) exposures were in the waste management, treatment, and disposal industry; followed by 4 (13.8%) in emergency and relief services; 2 (6.9%) in metal merchant wholesale; and 2 (6.9%) in construction (Figure 3). Industry was unknown for 12 work-related exposures; these exposures were presumed to be work-related because the testing was completed by an occupational health clinic. Only one work-exposed individual, where industry was unknown, had a speciated testing result that indicated an elevated inorganic arsenic level. For the remaining 28 individuals, without speciated results to indicate otherwise, it is possible that these elevated levels were a form of organic arsenic from seafood consumption. Elevated urine arsenic levels for work-related exposures ranged from 108–1,000 µg/L. There were no elevated blood arsenic levels with presumed work-related exposures.

The other 180 (86.1%) identified exposures were from presumed nonwork-related sources (Table 1). Of these exposures, 157 (87.2%) were from seafood consumption, 12 (6.7%) were from drinking water, 3 (1.7%) were from supplements, 3 (1.7%) were from ingestion of herbicides and insecticides, 2 (1.1%) were from consumption of rice, 2 (1.1%) were from wine, and 1 (0.6%) was an environmental exposure. Elevated blood arsenic levels for nonwork-related exposures ranged from 73–310 µg/L, and elevated urine arsenic levels ranged from 53 µg/L–2,981 µg/L. None of the results had been speciated as inorganic or organic.

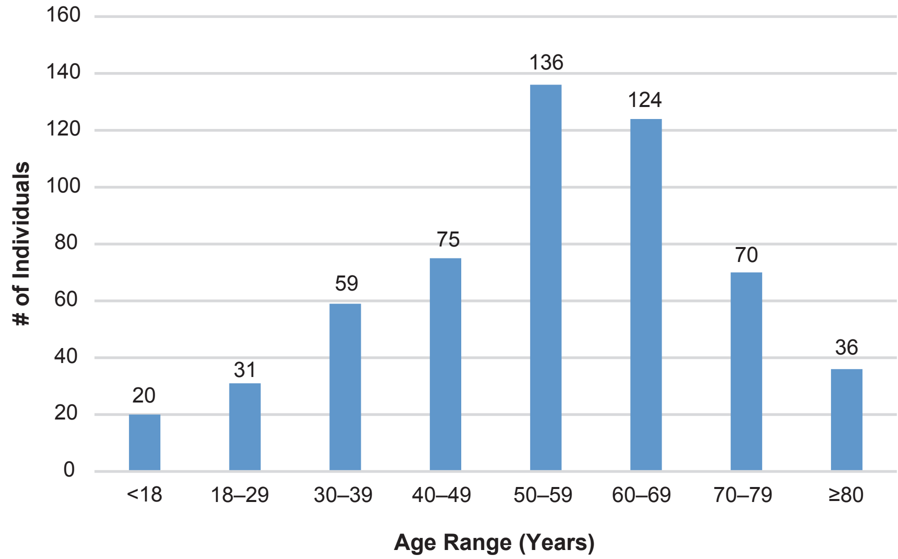
Of the 157 exposures from seafood, information on the type of seafood consumed was available for 13 people, and information on the frequency of consumption was available for 9 people. In all, 5 people reported salmon consumption, with arsenic levels ranging from 106–931 µg/L and an average level of 293 µg/L. Of the 4 people who reported the frequency of salmon consumption, 2 reported daily consumption, 1 reported eating salmon once per week, and 1 reported consumption once per month. In all, 4 people reported eating shrimp and had arsenic levels ranging from 121–330 µg/L, with an average level of 232 µg/L. Of the 3 people with information available on frequency of shrimp consumption, 2 reported eating shrimp once per month and 1 reported weekly consumption. In all, 3 people reported eating cod and had levels ranging from 150–330 µg/L, with an average arsenic level of 263 µg/L. For frequency, 1 person reported eating cod once a month, 1 reported weekly consumption, and frequency was unknown for the third person. In all, 3 people reported consuming crab and had arsenic levels ranging from 121–593 µg/L, with an average level of 297 µg/L. Similar to codfish, 1 person ate crab once a month, 1 person reported weekly consumption, and frequency was unknown for the third person. In all, 2 people reported eating lobster with unknown frequency. These individuals had an average level of 762 µg/L.

The remaining five types of seafood were each reported once and included mahi mahi, Polish sardines, tuna, squid, and sushi. Arsenic levels for these five seafood types ranged from 133–2,981 µg/L, with an average level of 1,032 µg/L. Consumption of sardines was reported at 3 times a day, mahi mahi was consumed weekly, tuna was consumed 2 times per month, and the frequency of consumption was unknown for squid and sushi. None of the 6 individuals who responded to the question asking if their healthcare professional had advised them to avoid eating fish in the 48 hours prior to the test had been advised to avoid fish consumption prior to their arsenic test.

Figure 4 depicts the sources of arsenic exposure by age group. The primary sources of exposure among children were drinking water and seafood consumption, with four exposures each. Moreover, 77% of arsenic exposures from seafood consumption were among individuals 40–79 years. Individuals 50–59 years had the highest number of seafood exposures with 43 (27.4%). Work-related exposures were highest among individuals 30–59 years with 23 (79.3%). Similar to seafood exposures, individuals 50–59 years had the highest number of work-related arsenic exposures with 11 (37.9%).

FIGURE **2**

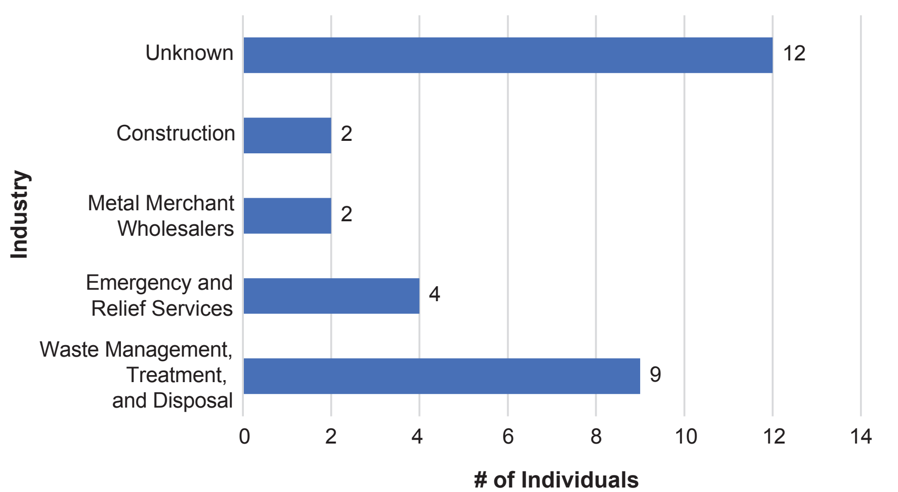
Number of Individuals With an Elevated Blood or Urine Arsenic Level by Age Group in Michigan, 2006–2024



Note. Date of birth was unknown for three individuals.

FIGURE **3**

Work-Related Exposures by Industry as Reported by the Individual or the Occupational Health Clinic in Michigan, 2006–2024

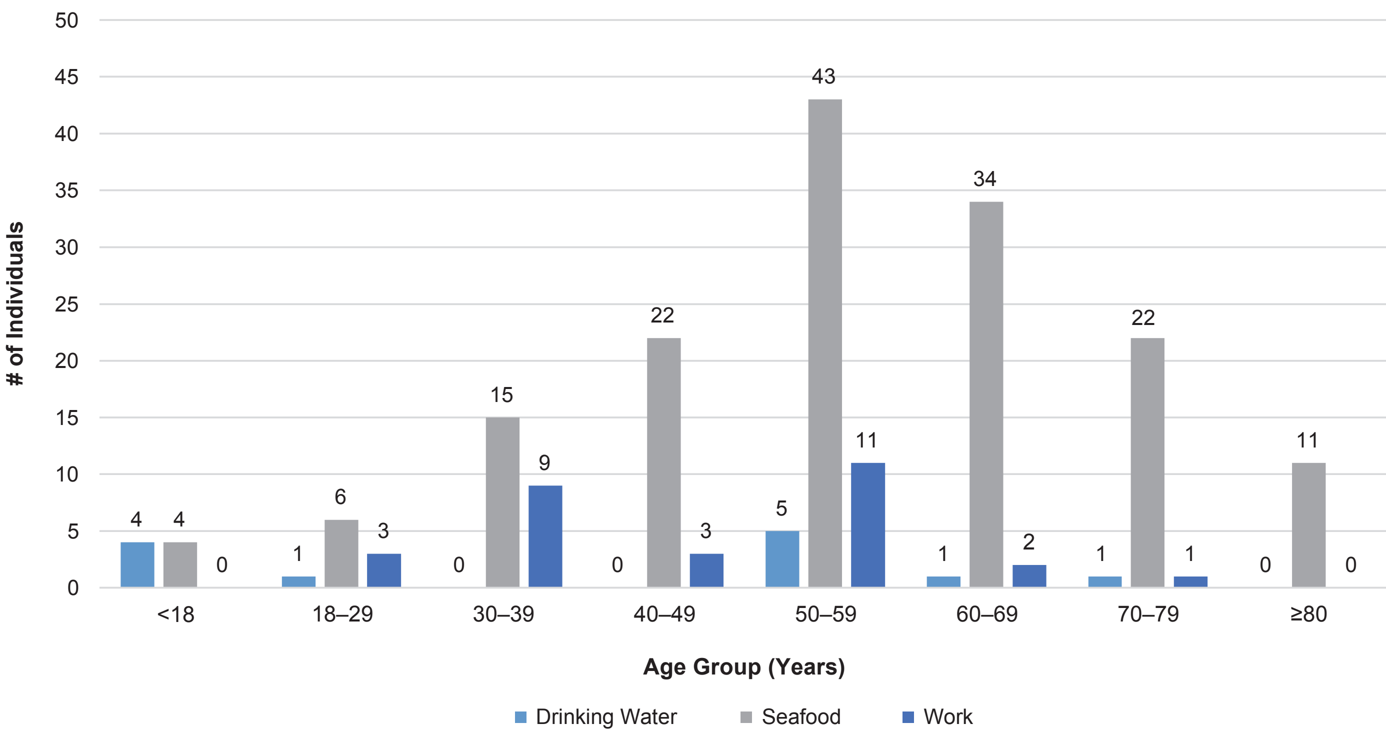


Discussion

Michigan began tracking elevated blood and arsenic levels in October 2005 under the authority of the *Michigan Public Health Code*, which requires clinical laboratories to report all arsenic, cadmium, mercury, and lead levels to MDHHS. Since tracking began in late 2005, 554 individuals had 611 elevated blood or urine arsenic results, most of whom were male (n = 329; 59.4%) and >18 years (n = 531; 95.8%). In total, 553 people had nonspeciated results and only 1 individual had an inorganic arsenic result. Elevated blood arsenic levels ranged from 71–537 µg/L, and elevated urine arsenic levels ranged from 53–2,981 µg/L. Of the 209 individuals with a known source of exposure, 29 (13.9%) had a presumed work-related exposure and 180 (86.1%) had a presumed nonwork-related

FIGURE **4**

Source of Arsenic Exposure by Age Group in Michigan, 2006–2024



exposure. The waste treatment and disposal industry had the highest number of presumed work-related exposures with 9 (31.0%), and the most common nonwork exposure was seafood (*n* = 157, 87.2%).

The total number of individuals with an elevated blood or arsenic level trended downward overall, from 57 people in the first year of tracking to 23 people in 2024. From 24 individuals in 2015, there was a 50–54% increase observed in 2016 (*n* = 36) through 2018 (*n* = 37). Furthermore, the number of individuals with an elevated arsenic level increased by 92% from 2023 (*n* = 12) to 2024 (*n* = 23). The spike in 2016–2018 can be explained, in part, by an increased awareness of adverse health effects caused by exposure to heavy metals due to the Flint water crisis that began in 2014, following the switch from Lake Huron to the Flint River as the source of drinking water for the city of Flint (Masten et al., 2016). The number of people tested for lead increased not only in Flint but also throughout the state, and during this time, healthcare professionals more frequently ordered heavy metal panels, which included tests for arsenic, cadmium, lead, and mercury.

Exposure to arsenic at work as the source of an elevated blood or urine arsenic level was unlikely in Michigan because there has been only one case of work-related arsenic poisoning identified since laboratory tracking began in the state. The U.S. stopped producing inorganic arsenic domestically in the mid-1980s, opting to rely on imports of arsenic instead (ATSDR, 2023). In 1947, under the Federal Insecticide, Fungicide, and Rodenticide Act, pesticides were required to be registered to keep track of ingredients used and applications of the products (Denver Department of Environmental Health, 2004). In 1988, most registrations of pesticides containing inorganic arsenic were canceled, after most companies had voluntarily canceled registration of their products in 1987 (Denver Department of Environmental Health, 2004). Additionally, the use of chromated copper arsenate (CCA) as a wood preservative was phased out in December 2003 when manufacturers voluntarily ceased production of CCA in favor of alternative preservatives, pest-resistant lumber, and non-wood building materials (U.S. EPA, 2025). U.S. EPA (2025) did not require the destruction of structures built with CCA-treated wood, however.

A major limitation of the surveillance system for arsenic has been the lack of speciated arsenic results. Only one elevated result was speciated and had an elevated inorganic level. The source of exposure for this individual was presumed to be from work. Inorganic arsenic is the toxic form of arsenic and exposure occurs through drinking water, rice consumption, and industrial settings.

Conversely, organic arsenic is considered nontoxic, and exposure occurs from seafood consumption. Without information on the type of arsenic the person was exposed to, meaningful interpretation of the results is difficult; therefore, it is possible that the 28 presumed work-related arsenic exposures without speciated results were actually due to seafood consumption. Some healthcare professionals, however, were not knowledgeable about the need to request speciation of elevated results into their inorganic and organic components.

Fortunately, all but one of the reference laboratories that analyze for arsenic in the U.S. has begun to routinely speciate elevated total arsenic results. The remaining reference laboratory notified us that they have initiated the process to begin to routinely speciate elevated arsenic results in 2026. The reduction in elevated arsenic levels in Michigan in recent years is probably partially due to the routine speciation by all but one of the reference laboratories measuring arsenic. Laboratories implementing automatic speciation of elevated total arsenic results will allow for more accurate interpretation of the results, which, in turn, will improve the ability of clinicians and public health professionals to advise exposed individuals on how to prevent future arsenic exposure.

Beyond clinical recommendations, routine speciation of the arsenic testing results will assuage patient concerns by informing them of whether or not they were exposed to the type of arsenic that is toxic; learning that the arsenic type is not toxic could prevent the need for unnecessary follow-up orders and additional testing for the patient. A second major limitation is that ordering providers have not advised their patients to avoid seafood for 48 hours prior to the test. The lack of advice to avoid seafood, in combination with the lack of speciation of the results, has been a major contributor to the occurrence of elevated results.

Another important limitation of the surveillance system is that it is not generalizable to the population as a whole, even though Michigan's surveillance system covers all parts of the state. The people with elevated arsenic levels in our study do not represent a random sample of the population, such as the one studied by Meliker et al. (2006) in Southeast Michigan. Rather, in our study, arsenic tests were ordered at the patient's request or in patients with selective medical symptoms (e.g., some neurologists order heavy metal panels in patients with peripheral neuropathy of unknown etiology), and therefore an unknown number of individuals who have been exposed to arsenic—but who do not get tested—are missed. The most common source of arsenic exposure in Michigan in the laboratory-based surveillance was seafood consumption. Our results do not negate the importance of drinking water and rice consumption as the major exposure source of inorganic arsenic to the general population (Meliker et al., 2006).

Interpretation of blood and urine arsenic results will improve with clinicians advising their patients to avoid seafood in the 48 hours before the test and with the implementation of automatic speciation of all elevated arsenic levels. Ongoing laboratory tracking of elevated blood and urine arsenic levels provides the opportunity to monitor current trends across the state, identify uncommon exposure sources, initiate public health interventions when necessary, and inform the medical community on how to order diagnostic tests for arsenic. Furthermore, this information can be used to educate the public on how arsenic exposure occurs and what can be done to prevent exposure.

Acknowledgment: This public health activity was supported by MDHHS.

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Did You Know?

Gulf South VECTOR works to prevent and control vectorborne diseases through research, outreach, and strategic partnerships. Through valuable partnerships, they provide tools and knowledge to help communities reduce the impact of mosquitoes and other disease-carrying vectors. Learn more and sign up for their Vector Outreach Quarterly newsletter at https://vectoroutreach.org.