

KEY FACTS ABOUT ARSENIC EXPOSURE FOR HEALTH CARE PROVIDERS

What is arsenic?

- Arsenic is a toxic element. It occurs naturally in rocks and soils, and can occur in groundwater.
- The main toxic form of arsenic is inorganic arsenic. Water arsenic compounds are inorganic and toxic.
- There are also organic forms of arsenic in seafood. Seafood arsenic compounds are not toxic.

How are people exposed to arsenic?

- Naturally occurring arsenic in groundwater is a major source of inorganic arsenic exposure. Groundwater contamination occurs when, under certain conditions, naturally occurring arsenic deposits in bedrock dissolve and seep into groundwater.
- Arsenic is poorly absorbed through the skin, if at all. Showering, bathing and washing dishes using arsenic-contaminated water is safe.
- During gestation, the developing fetus is exposed to arsenic via passage across the placenta from mother's blood to the baby's blood. In contrast, *breast-milk is safe* and does not contain inorganic arsenic.

What are the health risks associated with arsenic exposure?

- Arsenic is a well-established carcinogen, causing liver, bladder, kidney, lung, and skin cancer.
- Other associated health effects include heart disease, diabetes, immune effects and respiratory problems.
- In children, exposure is also associated with deficits in intelligence.

Why focus on pregnant women and children?

- Arsenic crosses the placenta and may affect fetal development.
- Infants and children may be more sensitive to the effects of arsenic than adults.
- In utero and early life arsenic exposure has been linked to adverse health effects later in life, including increased risks of respiratory disease, cardiovascular disease and certain cancers as adults.

Why should families have their well tested for arsenic?

- Arsenic has no smell, taste or color when dissolved in water, even in high concentrations.
- Testing a water sample is the only way to know how much arsenic is present in a well.
- EPA regulations and testing are limited to public water sources, not private wells. **If a family gets their drinking/cooking water from a private well**, they should have their water tested for arsenic.

What do test results mean?

- In New Jersey, the standard for arsenic is 5 micrograms per liter (abbreviated as "µg/L"). If arsenic levels are greater than 5 micrograms per liter, we encourage the use of bottled and/or properly treated water for all drinking and cooking, and encourage the installation of a treatment system.
- Importantly, a negative test for arsenic does not mean that your water is safe with respect to other water quality parameters.

How can patients reduce their exposure to arsenic?

- The most immediate option is to switch to bottled water for all drinking and cooking. Note that simple water filters (such as the activated carbon filters) available in the hardware store are NOT effective for arsenic removal. Note also that boiling water DOES NOT remove arsenic from water.
- If water has elevated arsenic, information on treatment options and treatment providers is available at http://www.nj.gov/dep/pwta/Arsenic_Treatment.pdf and tinyurl.com/arsenichelp
- Long-term, families should strongly consider either installing an appropriate treatment system or connecting to a public water supply if possible. If a treatment system is installed, water should be tested annually to ensure water is safe for arsenic and the system is working. The State of NJ has 0% interest 10-year loan programs to help home-owners spread the initial cost of buying and installing the units.

Should patients be tested for internal arsenic levels?

- We do not recommend testing for urine or blood arsenic levels at this time. Several types of tests are available; however, results can be difficult to interpret because there are no widely accepted standard values to distinguish "normal" from "elevated" test results. Test results can also be misleading if seafood was consumed during the week prior to arsenic testing, as the forms of arsenic derived from seafood are not toxic and complicate the interpretation of internal arsenic levels.
- Instead, patients should be encouraged to take action to ensure that they are using a safe water source. Once the source is reduced, blood levels of arsenic also will rapidly decline.