



Hawai'i State Department of Health

General Arsenic Information

1. Where is arsenic often found?

Low levels of arsenic are found naturally in the soils of Hawai'i. Low levels of arsenic are also naturally present in most produce. Higher levels of arsenic could occur in soil and even produce in areas where large amounts of pesticides and fertilizers are used. However, fruits and vegetables tested at the 8 ½ and 9 ½ Mile Camps in Kea'au did not have high levels of arsenic. The levels were comparable to arsenic in foods from supermarkets across the United States.

Arsenic can also be found in food such as seafood, seaweed, rice and other foods. In general, arsenic from such food sources has not been shown to be harmful. Arsenic has not been found in the drinking water from the Kea'au area or other areas of the state.

2. How do most people get arsenic in their body?

Most people get arsenic into their body from foods like seafood, seaweed, and rice. Health effects have not been shown from exposure to arsenic in food. After arsenic gets into the body, it will leave the body in a few days.

Final Results of Kea'au Arsenic Urine Testing

3. Why was arsenic testing done in the Kea'au area?

The Department of Health (DOH) offered the arsenic testing because elevated levels of arsenic were found in soil in two community gardens in Kea'au. The urine arsenic test can tell us how much arsenic is getting into a person's body. DOH asked for volunteers who lived near the community gardens and could have potential exposure to arsenic in the soil. These people were tested to find out if elevated amounts of arsenic were present in their bodies.

4. What can this testing tell us about arsenic in the body?

This testing can:

The testing can determine if the level of arsenic in the body is higher or lower than the average person. Testing can also help find out how much of the arsenic is coming from eating foods like shrimp, fish, crabs, seaweed and other seafood. Remember, most food sources of arsenic (like seafood) are not considered harmful. If a person's arsenic is

higher than most people, DOH can suggest behaviors that can help reduce the amount of arsenic that gets into their body.

This testing cannot:

Testing cannot tell where the other arsenic in a person's body came from. Some of the arsenic may be from exposure to soil. Small amounts may be from food like shrimp, fish, crabs, seaweed, rice and other foods. Testing cannot tell if a person will get sick from the arsenic.

5. *How many people and where did the testing occur for this arsenic project?*

A total of 33 people were tested who live at 8 ½ and 9 ½ Mile Camps in Kea‘au, Hawai‘i.

6. *Who was tested for arsenic?*

Participants ranged in age from 10 to 88. The majority of people tested were over 40 (average age 48). Seven of the participants were under the age of 20. There were about an equal number of men and women in this project. (Gender: 18 males, 15 females.)

7. *When was the testing done?*

In the Fall 2005 and Winter 2007.

8. *What were the final results of the testing?*

- A. This investigation could not determine if living, gardening, or playing near arsenic contaminated soil and bringing residual soil/dirt into the home from normal household activities contributed to urine arsenic levels among participants. The arsenic levels in participants may primarily reflect dietary contributions from seafood, seaweed, rice and other food sources. In general, most arsenic from such food sources is not considered harmful.
- B. The majority of adults and all children tested for urine arsenic had arsenic levels that are similar to those detected in other populations who frequently eat seafood, seaweed, rice and other food sources. No adverse health effects from arsenic toxicity have been reported in populations who frequently eat these foods.
- C. Seven adults were retested because food sources may have contributed to their test results. All retested participants had urine arsenic levels that declined and had levels that are similar to populations that frequently eat seafood, seaweed, and rice. No adverse health effects from arsenic toxicity have been reported in populations who frequently eat these foods.

9. What are the final recommendations from this testing?

- A. Although this investigation could not determine if living in an area with arsenic contaminated soil contributed to urine arsenic levels among participants, arsenic soil levels in the community gardens are still considered elevated. Because of continued use of the community gardens, good public health measures should be considered including limiting preschool children's access to the community garden.
- B. ATSDR/DOH recommends following general food safety guidelines. Additional general food safety guidelines are outlined below for home-grown fruit and vegetable consumption to reduce potential exposure to arsenic:
- Wash hands with soap and water after working in the garden and before eating produce from the local garden.
 - Wash all fruits and vegetables to remove soil before eating.
 - Peel fruits and vegetables to remove soil.
 - Peel root crops (potatoes, carrots, beets, etc.).
 - Discard older or outer leaves of leafy vegetables during food preparation.
- C. ATSDR/DOH recommends the following prudent, protective land use practices to decrease future exposure to arsenic from gardening:
- Avoid putting fingers or tools in mouth when working in the community garden.
 - Do not use CCA (arsenic containing) treated lumber to build raised beds.
 - Avoid tracking garden soil into the home on clothes, shoes or tools.

10. What are the health effects of having more arsenic in your urine than other people?

Having more arsenic in your urine than other people does not necessarily mean that you will get sick. After arsenic gets into the body, it will leave the body in a few days. It's important to find out what contributed to your arsenic level, however, and find ways to limit the exposure. Also, the arsenic levels in the community garden soil are not high enough to pose an immediate health problem.

Reducing exposure to arsenic

11. *If a person wants to limit exposure to arsenic from fruits and vegetables, what should they do?*

People should continue to follow general food safety guidelines. See the food safety recommendations provided in #9 above.

12. *Should Kea'au residents continue to follow the recommendations presented earlier in DOH fact sheets?*

Yes, the fact sheet provides some simple ways to reduce exposures to soils that may have elevated levels of arsenic. The DOH recommends people follow prudent public health guidelines. These general guidelines include:

- Avoid putting fingers or tools in your mouth while working in the garden.
- Wash your hands and face after gardening in the soil, especially before meals or snacks or smoking.
- Wash vegetables and fruits harvested from the gardens before bringing them in the house and eating them. Make sure there is no soil left on them, even small amounts. Peel root and tuber vegetables, like taro and sweet potatoes, before eating them.
- Keep children from playing in the gardens.
- Try not to track soil into the home on clothes, shoes, or tools. If you do, clean it up with a wet cloth.

Foods

13. *Are locally grown fruits and vegetables safe to eat?*

Locally grown fruits and vegetables are safe to eat. DOH tested produce from the community gardens and found that arsenic levels were similar to levels in produce from grocery stores. Produce tested included taro roots, stems and leaves; sweet potato roots and leaves; onions roots and stalk; cassava, mustard cabbage, marangi leaves, bitter melon fruit and leaves, fern shoots, kancun leaves, pumpkins, string beans, long squash, squash shoots, bamboo shoots, eggplants, bananas, papaya, Patani beans and avocado. It is important, however, to carefully wash all fruits and vegetables thoroughly to remove any dirt and wash hands before eating any food.

14. *What foods should I stay away from?*

It is important to have a healthy balanced diet. A healthy diet includes fruits, vegetables, meats, seafood and grains. At this time, no changes in the diet are recommended.

Other General Questions

15. Will other people be tested?

At this time, testing for other people is not indicated and is not planned.

16. What else is the state doing to address the soil arsenic issues in Kea'au?

DOH tested soils in public use areas in and around Kea'au after elevated levels of arsenic in soil were discovered in 2004. Based on this testing, a fact sheet with information and recommendations was distributed in the community. Additional follow-up work and testing is planned to provide more recommendations and better define the extent and magnitude of elevated arsenic in the area. DOH is recommending arsenic testing on former sugarcane lands throughout Hawai'i before new development occurs, and provides guidance to individuals who want to test their own property. DOH has also collaborated with the University of Hawai'i to fund and encourage research on soil arsenic contamination and new or better ways to manage soil contaminated with arsenic.

17. Will the arsenic in the Kea'au gardens be cleaned up?

The arsenic in the gardens is not an immediate health concern to people that use the gardens. This investigation could not determine if living, gardening, or playing near arsenic contaminated soil contributed to urine arsenic levels among participants. The need for removal or treatment of soil from the gardens is currently being considered.

18. Should I have a test to see if arsenic is in my body?

At this time, we do not recommend people get arsenic testing. If you have questions about your specific situation and would like to discuss your concerns, please talk to your doctor or visit your local health clinic.

19. Should my garden/soil be tested?

If you live at the 8 ½ and 9 ½ Mile Camps, gardens and soil have already been tested. If you have a specific question about testing your soil, contact your local agriculture extension office for advice (i.e., Cooperative Extension Service in Hilo at 981-5199) or call DOH in Hilo at (808) 933-9921 and ask for John Peard.

20. Can I safely eat foods grown in Hawai'i soil?

Locally grown fruits and vegetables are safe to eat. The DOH tested produce from the community gardens with elevated levels of arsenic in soil and found that arsenic levels were similar to levels in produce from grocery stores.