

Navajo Birth Cohort Study
FREQUENTLY ASKED QUESTIONS (FAQ)
Meaning and Interpretation of Biomonitoring

BIOMONITORING RESULTS:

Why have these particular metals been looked at in my blood and urine?

Scientists know that many metals can create health problems in people who are exposed for long periods of time to high levels. While the Navajo Birth Cohort Study is mainly concerned with determining if exposures to uranium affect birth outcomes and development, we also need to determine what other environmental exposures may be occurring that could be contributing to our results.

What is an “exposure”?

The term “exposure” generally refers to eating, breathing, touching or in other ways coming into contact with chemicals or contaminants in the environment. Contaminants are natural or man-made substances in the environment that are found in forms, amounts or locations different from what is normally seen.

If I have results at the high end of the reference range, should I be worried about becoming sick?

The biomonitoring results of the analysis of your blood and urine samples show what metals are present at that point in time. The presence of an environmental chemical in your samples is only an indication of exposure; it does not by itself mean there is or will be a harmful effect on your health. Studies like the Navajo Birth Cohort Study are trying to find out more about relationships between exposure and health. We do know that the amount of metals in your blood and urine reflect recent things in your environment that you have come in contact with, and that some of these have the potential to be harmful.

What is NHANES, and why are my results compared to those results?

NHANES, the National Health and Nutrition Examination Study, is an ongoing effort by the Centers for Disease Control and Prevention (CDC) to understand what normal exposures to metals are within the United States. They analyze samples from hundreds of thousands of individuals every few years; this allows us to determine what levels of these metals are common, and what levels might be higher or lower than those values seen in other people in the United States.

What are these metals (antimony, arsenic, barium, etc.), and where could they be coming from?

Included with this letter is a “Metal Summaries” document that has short paragraphs about several metals that may be elevated in a participants’ blood or urine. These paragraphs include common sources of exposure to these metals, and what is currently known about the potential health effects related to exposures. Also, when you have both your biomonitoring and home environmental assessment feedback (HEA) letters, you can check to see if you have high levels in blood/urine *and* home dust. See “Are the biomonitoring and home environmental assessment letters related to each other?” at the end of this FAQ.

What should I do if I have results at the upper end of the NHANES reference range, or beyond what NHANES typically sees (values in red in your biomonitoring results table)?

Although we do not know what specific levels of metals might lead to sickness or disease, we know that there are no risks associated with attempting to reduce your exposure in order to decrease your risk. We have provided information on what can contribute to elevated levels of some key metals in blood and urine (“Metals Summaries”). We encourage you to look for ways to change your environment or activities to reduce your exposure and decrease risk of any potential health effects to you and your family. We have also provided Internet links for additional information at the end of this FAQ. Telephone contact information is provided in the letters.

What should I do if my results are below nutritional recommendations (values in blue in the table)?

Some of the metals measured are “essential nutrients,” or metals required for normal function of the body, such as zinc, selenium, and iodine. If your measured value is below the recommended level, we have noted it in your results table, but again, these are one-time measurements and not necessarily indicative of a problem. Most of these nutrients are included in the vitamin supplements recommended in your prenatal care visits. We encourage you to check with your clinician to see if there is evidence of a long-term deficiency.

What do these results mean for the health of my child?

Again, it is not known exactly what levels of most metals result in illness or disease in children. It is known, however, that certain metals such as lead increase the risk for developmental delays in children, and that children, in most cases, are more sensitive to environmental contaminants because of their developing organs and nervous system. The results and the information we have provided can help you assess your home and activities, identify increased risks for your child, and remove them early in your child’s development.

Note: The values reported represent a “snapshot” in time. For some participants, we will have multiple measures, and those findings that are consistent across time may be of more concern. Please review the potential sources that contribute to exposures and see if you can reduce exposures to reduce any potential risk. If you asked in your consent that results be placed in your medical record, you may also want to talk with your health care provider about anything that you remain concerned about.

Are the biomonitoring and home environmental assessment letters related to each other?

If you see similar patterns in the metals at high levels in your blood and urine *and* in the dust samples in your home, that is an indication that at least some of the exposures are resulting from activities or materials in the home. If the patterns are not the same and you see metals in blood and urine that are not in the home, looking outside the home, such as your place of work, or in your diet, may identify opportunities to reduce exposures.

Internet sites for information on exposures, potential health effects, and nutrient requirements:

Toxological fact sheets (from CDC): <http://www.bt.cdc.gov/chemical/toxfaqs.asp>;
<http://www.atsdr.cdc.gov/toxfaqs/index.asp>

Guideline on food fortification with micronutrients from World Health Organization:
http://www.who.int/nutrition/publications/guide_food_fortification_micronutrients.pdf

Navajo Birth Cohort Study Office Toll-free number
1-877-545-6775