

Kiddie Kollege Franklinville, Gloucester County Mercury Fact Sheet #5: January 2007

This fact sheet summarizes the New Jersey Department of Health and Senior Services (NJDHSS) and the Agency for Toxic Substances and Disease Registry/National Center for Environmental Health (ATSDR/NCEH) response to mercury contamination at the Kiddie Kollege day care center through January 2007.

What were the results of the December 2006 urine mercury testing?

The December 5, 2006 sampling round was made available to any child or staff who had ever attended or worked at Kiddie Kollege. Sixty-eight individuals participated in the sampling, including 23 who had not participated in earlier rounds, and 45 individuals who had been tested previously by the NJDHSS and ATSDR.

Every child tested had a level of less than 5 micrograms of mercury per gram of creatinine ($\mu\text{g/g}$). For children only, the average urine mercury level was 1.28 $\mu\text{g/g}$, with a range of 0.19 to 4.66 $\mu\text{g/g}$. The average of all results, including adults, was 1.36 $\mu\text{g/g}$.

Over time, what have NJDHSS and ATSDR seen with the urine testing?

With very few exceptions, all urine mercury levels have declined over time, regardless of initial test level. Nearly every child has had a drop in urine mercury levels, indicating that children are excreting mercury through urine, as expected. All of the levels are also decreasing to the range of normal background.

What tests are available to learn about exposures or effects?

The NJDHSS, ATSDR, Centers for Disease Control and Prevention (CDC), and the Mt. Sinai Pediatric Environmental Health Specialty Unit have been asked about other tests for mercury exposures. In general, there have been discussions on tests for *exposure* and tests for *effects*.

Tests for *exposure* look for the presence of mercury in the body, and can include tests on urine, blood, saliva and hair. Different forms of mercury accumulate in different parts of the body and are eliminated from the body differently, so different biological specimens are used for testing. Elemental mercury, the form found at Kiddie Kollege, is found in the blood for a short period of time (a few days at most). Afterwards elemental mercury can be found in the urine as it leaves the body. Blood testing is an excellent way to identify exposure to methyl mercury, the form of mercury found in food, but not for elemental mercury after exposures have ended. Saliva testing for mercury has also been conducted by a private firm. Since the saliva testing firm's web site states that the "... oral fluids found at the gum line contain trace amounts of blood plasma" it is likely that saliva testing is actually measuring exposures to methyl mercury. Other studies of saliva testing for mercury indicate that saliva is also picking up mercury from mercury dental amalgams. CDC has not determined the comparability of saliva mercury to blood or urine mercury. There are no existing studies validating that saliva mercury is a good measure for mercury body burden.



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Hair may also be tested for the presence of methyl mercury, but not elemental mercury. There has been some public discussion regarding the need for more invasive tests, such as a lumbar puncture (“spinal tap”). Lumbar puncture is not appropriate for mercury testing.

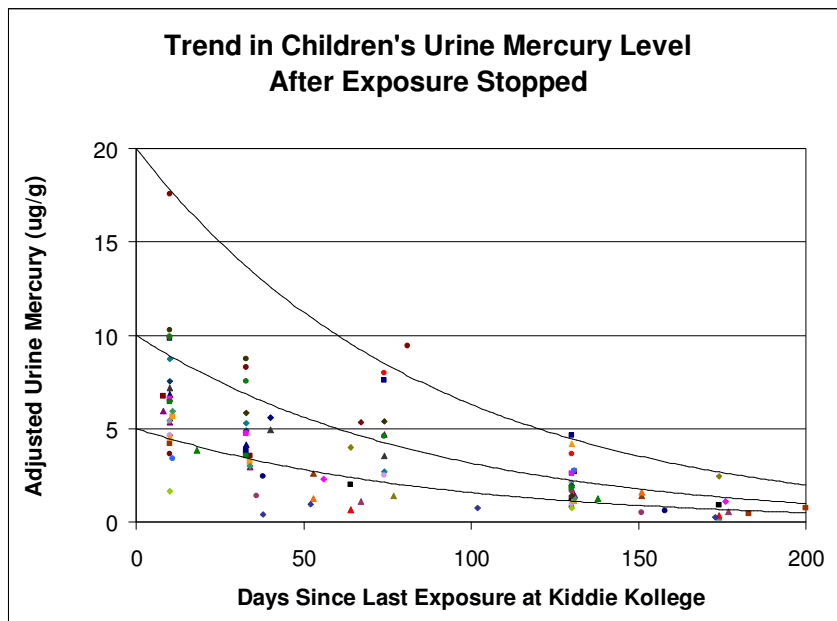
Tests for *effects* have also been discussed with parents, staff and health care providers. There are no clinical or subclinical effects that have been reported for people with urine mercury levels below 20 µg mercury per liter of urine. No reports of effects for people in the range of 21-39 µg/L have been documented, but this does not rule out the possibility of toxicity in sensitive individuals.

The CDC and the NJDHSS have offered to review medical records of any child or staff member. A medical record review is a comprehensive examination of a medical chart. It involves reviewing notes written by physicians, nurses and other clinicians, as well as reviewing laboratory results. A review of the medical records of children and adults who spent time at Kiddie Kollege can help determine if potential exposure to mercury in the building was associated with any health problems that occurred.

Because mercury is toxic to the brain and nervous system, neurobehavioral testing of children has been suggested as an appropriate follow-up. However, these tests are not suitable or scientifically validated for use among pre-schoolers.

What did NJDHSS and ATSDR initially expect with urine testing?

NJDHSS and ATSDR were deeply concerned that children and adults were exposed to mercury vapor at the Kiddie Kollege day care center, and that their urine mercury levels would be elevated, based on the indoor air levels provided by the New Jersey Department of Environmental Protection on July 28, 2006. The health agencies also expected the levels to drop over time, once exposures ended.



The graph shows the urine mercury results from 43 children who had more than one test measurement. Three additional lines have been added to represent hypothetical urine mercury levels beginning at three different points (20, 10 and 5 µg/g), and their expected decreases over time, assuming a 60 day biological half-life. A biological half-life is the amount of time that it takes for the body to eliminate one-half of a substance. In this case, if a child or adult had an initial urine mercury level of 20 µg/g, after 60

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days the level should decrease to 10 µg/g (half of 20 µg/g). In another 60 days the level should drop to 5 µg/g (half of 10 µg/g). This would continue until the amount the person eliminates from the body reaches the level he or she brings into the body from naturally occurring (or other) sources.

What have the medical records reviews shown?

To date, 17 medical records reviews of children and adults have been completed; an additional five records are expected. The records review focused on any effect that may be related to mercury exposure that was not diagnosed or successfully treated as a non-mercury illness. The records reviewed thus far did not indicate symptoms, signs or conditions consistent with mercury exposures.

What are the NJDHSS and ATSDR planning to do next regarding Kiddie Kollege?

There remain a very small number of children who had an earlier urine mercury test result of greater than 5 µg/g but who did not participate in the December sampling event. NJDHSS and ATSDR have offered to test these children in January 2007, to confirm that their levels have decreased as expected. The NJDHSS and ATSDR are also preparing a second Health Consultation to summarize the results of all rounds of urine testing and medical records review.

Additional Information

If you have health concerns, please consult your or your child's physician. There are medical centers that specialize in environmental health problems that your primary care provider may want to contact.

- For adults: The Environmental and Occupational Health Clinical Center in Piscataway, NJ sees adults who have been exposed to contaminants occupationally or environmentally. They can be reached at (732) 445-0123.
- For children: Pediatricians can contact the Mt. Sinai Medical Center's Pediatric Environmental Health Specialty Unit at (866) 265-6201.

If you have questions about the activities of the NJDHSS and ATSDR/NCEH, please call NJDHSS at (609) 584-5367. If you would like to participate in the medical records review, please contact Patricia Haltmeier at (609) 584-5367.

Information on mercury and Kiddie Kollege activities may be found at the following web sites:

NJDHSS: www.state.nj.us/health. Under "Health Topics A to Z," click on "Kiddie Kollege." You may also go to: <http://nj.gov/health/eoh/cehsweb/kiddiekollege/index.shtml>.

CDC: The CDC web site with information on mercury is: <http://www.atsdr.cdc.gov/mercury>.