

**Kiddie Kollege
Franklinville, Gloucester County
Fact Sheet #3: October 5, 2006**

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Mercury Exposure Screening

The most important step in reducing the chance of harm from exposure to mercury is to remove people from the source of exposure. This was accomplished by the closure of the Kiddie Kollege Day Care Center on July 28, 2006. Once the facility was closed, the New Jersey Department of Health and Senior Services (NJDHSS) and the federal Agency for Toxic Substances and Disease Registry/National Center for Environmental Health (ATSDR/NCEH) (a part of the U.S. Centers for Disease Control and Prevention, or CDC) began to screen children and staff of Kiddie Kollege to get a better understanding of how much elemental mercury students and staff may have been exposed to. This information would help NJDHSS and ATSDR/NCEH decide if medical follow-up was needed, and if so what type.

Exposure screening participants

The NJDHSS and ATSDR/NCEH developed a screening program in consultation with the Mt. Sinai Pediatric Environmental Health Specialty Unit (PEHSU) in New York and the National Center for Environmental Health laboratory in Atlanta. Exposure to elemental mercury is best determined through a test of the amount of mercury in the urine, since the body gets rid of elemental mercury this way. Once exposure has stopped, urine mercury levels are expected to decrease over time. On average, it takes about 60 days for the body to excrete half the mercury that may have accumulated from exposure, but this time may vary from person to person.

To date, 72 children and 9 adults who were present in the Kiddie Kollege day care after June 8, 2006 (about 60 days before the initial screening took place) have been tested for exposure.



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Results of exposure screening

Urine mercury tests are reported as micrograms of mercury per gram of creatinine in the urine ($\mu\text{g/g}$). Creatinine is a measure used to adjust for the diluteness of a urine specimen.

- Among the 72 children that have been tested, the average level of urine mercury was 4.0 $\mu\text{g/g}$. The lowest level was 0.3 $\mu\text{g/g}$ and the highest level was 17.5 $\mu\text{g/g}$.
- Among the 9 adults tested, the average level was 4.4 $\mu\text{g/g}$, with a range of 0.6 $\mu\text{g/g}$ to 11.4 $\mu\text{g/g}$.

When we separated children by the length of time they were away from Kiddie Kollege, we found that children who were tested within two weeks of their last exposure at Kiddie Kollege had an average urine mercury level of 5.7 $\mu\text{g/g}$, while children who were tested more than two weeks after their last exposure had an average of 2.0 $\mu\text{g/g}$. This indicates that children's urine mercury levels were decreasing with time away from Kiddie Kollege.

Based on a review of scientific medical information, the NJDHSS and ATSDR/NCEH determined that the upper limit of background for urine mercury levels is 5 $\mu\text{g/g}$. In other words, levels above 5 $\mu\text{g/g}$ would not be expected in the general population.

- Among the 72 children tested, 22 (31%) had first urine specimens with mercury levels above 5 $\mu\text{g/g}$.
- Among the 9 adults tested, 3 (33%) had first urine specimens with mercury levels above 5 $\mu\text{g/g}$.

The NJDHSS and ATSDR/NCEH offered follow-up urine mercury testing to the 22 children and 3 adults whose first test exceeded 5 $\mu\text{g/g}$. The purpose of the second test is to ensure that individual urine mercury levels are decreasing to below 5 $\mu\text{g/g}$ over time. To date, 18 of the 22 children and all 3 adults have had a follow-up test. Since only 3 adults had a follow-up test, the results for adults are not summarized to protect privacy.

- Urine mercury levels dropped by more than 50% in 5 of the 18 children. For 8 children, urine mercury dropped from 25 to 49%, and for 4 children the drop was between 10 and 24%. For one child, the urine mercury level remained about the same. The differences in percentage decrease may be due to differences in the amount of time between first and second tests, or because of variation between people in the rate that mercury is eliminated from the body.
- The average value of the second test for urine mercury in the 18 children (whose first test was above 5 $\mu\text{g/g}$) was 4.8 $\mu\text{g/g}$, with a range of 2.1 $\mu\text{g/g}$ to 8.7 $\mu\text{g/g}$. One-third of the follow-up urine mercury levels in children remained above 5 $\mu\text{g/g}$.

These results indicate that, in general, children's urine mercury levels are dropping over time as expected. The NJDHSS and ATSDR/NCEH will continue to offer follow-up urine mercury testing for children and adults whose last test was above 5 $\mu\text{g/g}$. This helps us ensure that levels continue to decrease.

Measured exposure levels and health effects

The risk to health depends on how much a person is exposed to, and how long the person is exposed. Higher exposures are more likely to cause health effects than lower exposures. Also, different people may respond differently even if exposed to the same amount of mercury. Not everyone who is exposed to mercury will have signs and symptoms related to mercury exposure.

This exposure screening has shown that elevated exposures have occurred among some children and adults at the Kiddie Kollege day care center. However, health impacts are not expected to occur in these individuals. Urine mercury levels below approximately 20 µg/g, as a result of previous exposures, are not expected to be associated with health effects.

The central nervous system is likely the most sensitive target for elemental mercury vapor exposure. Symptoms such as tremors, changes in vision, deafness, personality changes, muscle incoordination, loss of sensation and difficulties with memory have been reported after high levels of mercury exposure. Acrodynia, a rare condition with symptoms that include severe leg cramps and painful pink fingers and peeling skin on the hands and feet, occurs only in children.

It should be noted that this exposure screening reflects the magnitude of exposure during the summer of 2006, and may not be representative of past exposures to children and adults at Kiddie Kollege.

Next Steps

In addition to the ongoing mercury exposure screening and follow-up testing for those with levels above 5 µg/g described above, the NJDHSS and ATSDR/NCEH will offer another round of urine mercury testing to all children and staff of Kiddie Kollege. The purpose of this testing is to confirm that urine mercury levels in children and staff are within the range of background, and to address parents' concerns about their children's exposures. This round of testing should occur once sufficient time has elapsed for individuals to eliminate a high percentage of the mercury that they may have been exposed to at Kiddie Kollege. Because the average half-life of elemental mercury in the body is approximately 60 days, the NJDHSS and ATSDR/NCEH recommend that this round of testing takes place in December 2006, about four months (two half-lives) from the closing of the day care center.

NJDHSS and CDC Offer Medical Records Review

The NJDHSS and ATSDR/NCEH are also offering to review the medical records of children and staff from Kiddie Kollege. This approach will help us to learn if any health effects may have resulted from past mercury exposure. Everyone who spent time at Kiddie Kollege is invited to participate, including those who were not a part of the mercury exposure screening. Enclosed with this fact sheet is an informational memo and medical records release form. Please fill out the form and fax or mail it to Dr. Mary Glenshaw, a CDC epidemiologist working at NJDHSS. If you have any questions please call Dr. Glenshaw at (609) 588-8536. If further medical follow-up is indicated after each review, the epidemiologist will consult with the child's parents and

physician and refer them to Mt Sinai's PEHSU or to the Environmental and Occupational Health Clinical Center in New Jersey.

USEPA Offers Home Testing for Mercury

The U.S. Environmental Protection Agency (USEPA) is offering home mercury testing to staff and to parents of children from the Kiddie Kollege day care center. Letters announcing this offer have been sent to staff and parents on the NJDHSS mailing list. For more information, please contact Patricia Seppi, Community Involvement Coordinator at the USEPA, at (646) 369-0068 or (212) 367-3679.

Additional Information

If you have health concerns, please consult your physician or your child's pediatrician. There are clinics 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.

All of the NJDHSS fact sheets and links to additional information about mercury may be found at the NJDHSS web site, www.state.nj.us/health. Under "Health Topics A to Z," click on "Kiddie Kollege."