Child Development Center and Lead

Fact Sheet and Q & A

General information about Lead Toxicity:

- Lead is a toxic heavy metal which disproportionately affects children. This is because children are developing tissue and organs. Of particular importance is their brain development and the negative effects lead toxicity can have on the brain.

- The average lead level in US children is about 2 micrograms/deciliter (ug/dl), and there is general agreement that 2 ug/dl is the best we can do. The Center for Disease Control defines 10 ug/dl or greater as lead poisoning. Lead levels ranging from 10 to 45 ug/dl are considered mild-to-severe. Anything over 45 ug/dl is considered severe. Some patients have had levels as high as 300 ug/dl. Many children have levels as high as 20 ug/dl and this is considered moderate

- Lead levels tend to be higher in the Northeast because we have the greatest concentration of homes containing lead paint.

- Paint is the greatest source of ingested or inhaled lead – interior or exterior paint. Paint with lead was permitted until 1978. There are currently as many as 50 million homes that have some degree of lead paint, and this is particularly so in the Northeast. Paint deteriorates and eventually produces lead dust. Inhalation or ingestion of dust is more common than ingestion of lead paint chips. Dust can fall on toys and end up on fingers; children then mouth toys and fingers, and toxicity can occur in this way.

- Air, water and soil are uncommon sources of lead toxicity. De-leaded gas reduced lead exposure from air by 35%. Water is no longer a significant source as a result of the Clean Water Acts. Towns and cities regularly monitor their water supply systems to ensure that water has negligible amounts of lead. As regards soil as a cause of lead poisoning, a child would need to eat a lot of soil to develop lead poisoning.

- Recalled toys are also a potential source of lead exposure. More than 50 million products and 170 million pieces of jewelry have been found to contain lead. However, toys rarely lead to poisoning.

- Once a child gets lead in his or her blood stream, lead will circulate for days to a week, and then leave the blood stream. Regular readings would show lead levels going down. However, while the lead may leave the blood stream, it diffuses into tissues including the muscles, livers, kidney and brain. The lead stays in the tissue for weeks, and then it migrates into the bone and is incorporated into the bone matrix alongside calcium. 70-80% of lead a child is exposed to goes into

bone and stays there. The bone acts like a vault or tomb, and contains the lead. It doesn't cause harm anymore, with one exception. Pregnant women reabsorb calcium to nourish the fetus; lactating mothers reabsorb bone calcium to produce milk. So females with significant exposure do mobilize lead and lead levels will rise in women during pregnancy.

- Lead effects:
  - I.Q. – children risk losing two to three I.Q. points per 10 micrograms/deciliters of lead. However, the normal range of variability in I.Q. tests can be 5-10 points in a typical child.
  - Attention and impulsivity
  - Behavior and socialization skills – children can become aggressive and develop anti-social behaviors.

- There is no way to determine if an individual was exposed to lead many years after the fact. There are no signs or symptoms. Regular testing at the time of suspected exposure is the only way we can know.

- Treatment – there are three approaches:
  - Search the environment and remove the sources of lead so no additional exposure occurs.
  - Increase calcium and iron intake. These nutrients help children handle the lead burden.
  - Chelators can bind lead and help it to pass out of the system in urine. However, there are risks and side-effects. So, they are typically reserved for children with moderate or severe lead poisoning.

Questions about Lead at the CDC:

- **Should the college have replaced the soil in 1993, as recommended by a consultant?** Based on the concentrations of lead in the soil, removal would have been aggressive. Given that we used grass, mulch and bushes, and recognizing that toxicity rarely results from exposure to lead in soil, removal of the soil was not warranted.

- **Is there any way we can determine if our children were exposed to lead?** There is no way to determine if there was a long-ago exposure. There are no tests, and there are no signs or symptoms. If there was a way to make that determination, we would still not know if the exposure occurred at the CDC.

- **When is the best time to test for lead?** In the summertime, when children are more likely to be exposed. Because of the ubiquity of lead, and because children play outside more in the warmer weather, mid-summer testing is recommended.

Questions about Process at KSC:

- **Who is overseeing this project?** Sylvie Rice, Environmental Health and Safety Coordinator, Ellen Edge, Director of the Child Development Center and Frank Mazzola, Director of the Physical Plant Department are overseeing the project with consultation and support from Jay Kahn, Vice President for Finance and Planning.

- **How can families learn about lead and the CDC?** Families can refer to the CDC website at www.keene.edu/cdc for updates and information.

- **What will KSC do to remediate existing lead at the CDC playground?** A full-scale abatement is scheduled for the summer of 2008. This will involve the replacement of windows on Elliot Hall bordering the CDC playground and the removal of lead from all painted surfaces of Elliot Hall that border the playground. Following the abatement, soil samples will be taken to ensure that concentrations are within acceptable limits, and the fence will be reinstalled. The soil results will be provided to the State for their review, and additional remediation (if needed) will be conducted in 2009.

- **Where will Early Sprouts garden beds be located?** They will be re-located outside the main entrance to the CDC, and on an adjoining grassy area, to ensure that the gardens are not contaminated during the lead abatement scheduled for the summer of 2008.

- **Will the CDC contact past parents?** The CDC would like to reach out to past parents. Unfortunately, records of past parents were regularly purged. A reconstructed list was developed by the Advancement Office three years ago drawing upon all available information in CDC records. Our existing database has records from 2004 to the present. We used those existing records, and the reconstructed list, to alert parents. In addition, we sent a press release to the Keene *Sentinel* last summer in the hope that past parents would read the article.

  However, we recognize that our outreach using the reconstructed list and the press release resulted in gaps, and that some families still did not know. We are eager to reach out to past parents, and welcome any suggestions about how that might be accomplished. Please contact Ellen Edge at eedge@keene.edu, 603-358-2232 if you know of a parent who should be contacted.

- **How Are Current CDC Parents Informed and Involved?** The Child Development Center has a Family Advisory Council made up of families and staff, and they act as an advisory group to the CDC Administration and give

input to all plans affecting the CDC. They have been made aware of our work to protect children from lead toxicity, and they will continue to review our work and provide input throughout. All news pertaining to the lead abatement has been regularly provided to all parents in the form of letters and newsletter articles. Meetings have been held. In addition, Sylvie Rice, the Environmental Health and Safety Coordinator facilitated the development of a USNH Child Safety Committee involving all the Environmental Health and Safety Coordinators and CDC Directors for the University System of New Hampshire.