CDC Health Advisory #00275

Potential Exposure to Lead in Artificial Turf
Public Health Issues, Actions, and Recommendations

This is an official CDC Health Advisory

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Public Health Issues

In the course of conducting a routine health investigation at a metal facility in Newark, NJ, the New Jersey Department of Health and Senior Services (NJDHSS) and the Agency for Toxic Substances and Disease Registry (ATSDR) tested a nearby community athletic field for lead contamination. Samples taken from the field showed high levels of lead in the field dust, but the lead did not come from the scrap metal facility.

The Centers for Disease Control and Prevention (CDC) is partnering with its sister-agency, ATSDR, to monitor this situation because of CDC's expertise in lead poisoning prevention.

After determining that the lead source was the artificial turf, NJDHSS began to test other artificial turf fields looking for similar high lead levels in artificial turf fibers. These findings raised concerns about potentially high lead levels in artificial turf used in other locations including fields and playgrounds. NJDHSS tested a limited sample of athletic fields in New Jersey. Any questions regarding the specific fields tested should be directed to NJDHSS.

As determined by NJDHSS, limited sampling of additional athletic fields in New Jersey and commercial products indicates that artificial turf made of nylon or nylon/polyethylene blend fibers contains levels of lead that pose a potential public health concern. Tests of artificial turf fields made with only polyethylene fibers showed that these fields contained very low levels of lead.

Information provided by NJDHSS to CDC and ATSDR indicates that some of the fields with elevated lead in either dust and/or turf fiber samples were weathered and visibly dusty. Fields that are old, that are used frequently, and that are exposed to the weather break down into dust as the turf fibers are worn or demonstrate progressive signs of weathering, including fibers that are abraded, faded

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or broken. These factors should be considered when evaluating the potential for harmful lead exposures from a given field.

The risk for harmful lead exposure is low from new fields with elevated lead levels in their turf fibers because the turf fibers are still intact and the lead is unlikely to be available for harmful exposures to occur. As the turf ages and weathers, lead is released in dust that could then be ingested or inhaled, and the risk for harmful exposure increases. If exposures do occur, CDC currently does not know how much lead the body will absorb; however, if enough lead is absorbed, it can cause neurological development symptoms (e.g. deficits in IQ). Additional tests are being performed by NJDHSS to help us better understand the absorption of lead from these products.

In general, children less than 6 years old are more likely to be affected by lead than adults because of increased contact with lead sources in the environment, including lead contaminated house dust and soil. Children also absorb lead more easily. Children's developing nervous systems are also more susceptible to the adverse health effects of lead including developmental delay and behavioral problems.

It should be emphasized that although turf testing has been limited to the state of New Jersey, no cases of elevated blood lead levels in children have been linked to artificial turf on athletic fields in New Jersey and elsewhere. Concerned parents should talk to their child's pediatrician about potential and known sources of lead in their children's environment and whether their children should have a blood lead test. This is a simple blood test that is paid for by most private insurers and by Medicaid.

NJDHSS has asked the United States Consumer Product Safety Commission (CPSC) to investigate this potential problem and CDC and ATSDR are currently waiting for information from CPSC to help guide future public health recommendations and actions.

Interim Public Health Actions Related to Testing Artificial Turf Products and Reducing Potential Exposures to Lead

NJDHSS's testing of artificial turf fields was limited and only sampled turf containing nylon. Since NJDHHS, CDC and ATSDR did not test fields composed of substances other than nylon and nylon/polyethylene blend, we do not know if lead is also a component in other types of artificial turf.

Additionally, not necessarily all turf made of nylon contains elevated amounts of lead.

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CDC has long recommended the elimination of all nonessential uses of lead. Because it is unclear whether all artificial turf contains lead at this time, CDC and ATSDR only recommend testing artificial turf fields that appear worn or weathered.

As a precaution, until further guidance is available from CPSC and until we have more information about the absorption of lead from artificial turf products and its capability of harm, CDC and ATSDR recommend:

- Testing turf that has fibers that are abraded, faded or broken contains visible dust, and that is made from nylon or nylon-blend fibers. Information about testing is provided later in this alert.
- If the dust contains more than 400 ppm lead, do not allow turf access for children under the age of 6 years.
- If access is restricted, care should be taken to ensure that alternative sites contain lead levels less than 400 ppm.
- Not testing turf made from polyethylene-only fibers. This recommendation is based on currently available data.
- Not testing turf made from nylon or nylon blends that is not worn and does not contain visible dust. These fields should be routinely monitored for wear and dust generation. Replacing fields as soon as practicable if worn and dusty, as a precautionary measure.

CDC recommends testing children's blood lead levels in accordance with state guidelines. Concerned parents/caregivers should consult their medical providers for further information.

General Recommendations on the Use of Fields with Artificial Turf

At this time, CDC does not yet understand the potential risks associated with exposure to dust from worn artificial turf.

The following precautions can be taken to minimize any potential risk.

1. Field managers should consider implementing dust-suppression measures. Suggestions for dust-suppression methods can be found at NJDHSS's website, which is provided in the additional information section.
2. Children ages 6 and younger are most susceptible to lead's harmful health effects. To protect the public, in particular young children, consider posting signs indicating that:
3. After playing on the field, individuals are encouraged to perform aggressive hand and body washing for at least 20 seconds using soap and warm water.

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4. Clothes worn on the field should be taken off and turned inside out as soon as possible after using the field to avoid tracking contaminated dust to other places. In vehicles, people can sit on a large towel or blanket if it is not feasible to remove their clothes. These clothes, towels, and blankets should be washed separately and shoes worn on the field should be kept outside of the home.
5. Eating while on the field or turf product is discouraged.
6. Avoid contaminating drinking containers with dust and fibers from the field. When not drinking, close them and keep them in a bag, cooler, or other covered container on the side of the field.

General Lead Poisoning Prevention Recommendations:

Especially in houses where children are present, parents, day care providers and other child care providers should follow lead safety practices regardless of the type of playing surface. These practices can help prevent children from being exposed to the many sources of lead in the environment.

1. Wash children's hands frequently and always before they eat.
2. Do not eat food or use pacifiers that have been dropped on the floor or outside.
3. Remove shoes when entering the house or use door mats.
4. Have your house inspected for lead if it was built before 1978.
5. Use lead-safe work practices when doing work that disturbs lead-painted surfaces.

Lead Testing of Artificial Turf Fields

Facility managers who choose to have the turf at a field tested for lead should contact their local or state department of health and/or environment about appropriate sample collection and analytic methods. CDC and ATSDR recommend using appropriate U.S. Environmental Protection Agency, National Institute for Occupational Safety and Health, or American Society for Testing and Materials methods.

Additional Information:

For additional information about testing, dust suppression measures and other topics related to NJDHSS's work to address lead in artificial turf visit NJDHSS's artificial turf website at http://www.state.nj.us/health/artificialturf/index.shtml.

For a list of state health departments, visit the Association of State and Territorial Health Officers (ASTHO) site at http://www.astho.org/index.php?template=regional_links.php.

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ASTHO also provides a list of state environmental health directors at: http://www.astho.org/index.php?template=enhancing_environmental_health_s.html.

The U.S. Consumer Product Safety Commission regulates consumer products, including artificial turf. Additional information about CPSC and artificial turf can be found at http://www.cpsc.gov http://www.cpsc.gov/.

Categories of Health Alert messages:

Health Alert: Conveys the highest level of importance; warrants immediate action or attention.

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**This Message was distributed to State and Local Health Officers, Epidemiologists, State Laboratory Directors, PHEP Coordinators, HAN Coordinators and Public Information Officers as well as Public Health Associations and Clinician organizations

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