U.S. Army Public Health Command (Provisional)
formerly U.S. Army Center for Health Promotion and Preventive Medicine

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Just the Facts...

Guidance on Lead in Artificial Turf Including Child Care Centers

The USAPHC (Prov) is recommending that the Army follow the Department of Health and Human Services (DHHS) agency guidance from the Centers for Disease Control (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR). The CDC, ATSDR, and the Environmental Protection Agency (EPA) are continuing to study this concern and will provide further guidance in the near future. New information on this issue will be posted on the USAPHC Home Page at http://chppm-www.apgea.army.mil/ and continually updated as it becomes available.

What We Know

1. The United States has about 3,500 synthetic playing fields made of various materials, including nylon and polyethylene, and about 800 are installed each year at schools, colleges, parks and stadiums, including some playing fields at DOD installations. Pigment containing lead chromate is used in some surfaces to make the turf a colorfast green. It is not clear how widely this pigment has been used. The use of artificial turf in the Army is currently being reviewed.

2. The New Jersey Department of Health and Senior Services (NJDHSS) and the ATSDR found lead-containing turf material on one playing field during an investigation of lead releases from an industrial facility. NJDHHS then tested 12 artificial turf fields containing nylon, polyethylene, or a blend of the two plastics. Lead was not detected or was found in very low levels in the polyethylene materials. The nylon and blend fields had levels of lead well above those considered safe for soil. We do not know whether lead is a component in other types of artificial turf. Additionally, we do not know whether all turf made of nylon contains significant amounts of lead.

3. The Army recently launched an investigation to identify Army sites where artificial turf is used. This is a logical first step in order to focus any future investigations that may be necessary on those sites known to use artificial turf.

4. There are no reports of elevated blood lead levels associated with artificial turf use, including within DOD. Health officials from the CDC and ATSDR say the potential risk is through cumulative exposure on heavily worn fields. While it is unlikely that anyone will play on a turf lawn or field once and sustain an excessive lead exposure, the risk of health problems rises with repeated exposures.

Army Lessons Learned

1. The mechanism for potential exposure to lead in artificial turf appears to be similar to exposure to lead in non-glossy vinyl plastic miniblinds imported from China, Taiwan, Mexico, and Indonesia. In 1996, the Consumer Product Safety Commission (CPSC) determined that the miniblinds were made with plastics containing lead, which was released when the plastic surfaces deteriorated from heat or sunlight, resulting in lead dust that can be inhaled or ingested. USAPHC provided guidance following CPSC's recommendations for removing and replacing blinds at http://chppm-www.apgea.army.mil/Resourceguide/A_Zindex.aspx?#L

2. From 1997-2003, USAPHC investigated another lead exposure similar to lead in artificial turf. USAPHC discovered lead in some plastic playground equipment, and determined that the dissociation of lead in pigments in the plastic polymer matrix caused lead exposures. Ultraviolet light, abrasion, and weathering caused lead to be released onto the surface of the plastic. USAPHC recommended removing and replacing plastic playground equipment containing any detectable level of lead.

CDC and ATSDR Recommended Precautions

1. On 18 June 2008, the CDC issued "Potential Exposure to Lead in Artificial Turf: Public Health Issues, Actions, and Recommendations" with the following guidance: "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.
- 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."
- "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.
- Field managers should consider implementing dust-suppression measures. Suggestions for dust-suppression methods can be found at http://www.state.nj.us/health/
- 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:
- 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.
- 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.
- Eating while on the field or turf product is discouraged.
- 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."

2. Additional Guidance for Child Care Centers:

a. The CDC and ATSDR guidance recommends sampling only artificial turf that is made from nylon or nylon-blend fibers and that are used by children under the age of 6. When sampling, we recommend that HQ-IMCOM follow the CDC and ATSDR recommended bulk sample standard of 400 ppm as the maximum. Per this guidance, restrict access to the turf if bulk samples exceed 400 ppm.

b. Wipe Sampling should be conducted on turf containing 400 ppm and less. For wipe samples, we recommend applying the current EPA residential lead on floors standard of 40 micrograms/square foot (40 ug/ft^2) to artificial turf. If wipe sample results exceed 40 ug/ft^2, clean and retest the turf until the results are below the standard.

c. In addition, if the turf contains lead, we recommend covering any areas of the turf that infants will be using with sheets or blankets, and washing the sheets or blankets on a daily basis. This bedding must be washed separately from all other laundry.

d. In addition, for all children and adults at the day care centers, follow the good hygienic practices contained in the following USAPHC guidance at http://chppm-www.apgea.army.mil/documents/LeadArtificialTurfguidance5.pdf and the CDC Public Health Advisory (Jun 2008), Section C. "The CDC and ATSDR Recommended Precautions"http://www2a.cdc.gov/HAN/ArchiveSys/ViewMsgV.asp?AlertNum=00275

e. Especially if wipe sampling showed greater than 40 ug/sq ft, day care personnel should ensure an ongoing program of daily cleaning and monitoring of the condition of the artificial turf. Remove and replace turf that has fibers that are abraded, faded or broken.

3. Additional Guidance for Playing Fields:

a. If children under the age of 6 will be using the playing field, restrict access to the field if bulk samples exceed 400 ppm.

b. If the person is over 6 years old there is no guidance at this time other than to follow CDC's and USAPHC recommendations for good hygiene practices and replacing worn fields at the websites listed above.

4. If parents are concerned about their children's past exposures to artificial turf or to any other potential sources of lead exposure, they should contact their health care provider for lead screening.

5. USAPHC recommends that the Army follow CDC and ATSDR current guidance on this issue. New information will be posted on the USAPHC homepage and continually updated as it becomes available. In addition, because of the sensitivities and concerns likely to be associated with this issue (i.e., possible health effects to children, uncertainties), USAPHC recommends that risk communication tools and interactive processes be incorporated into projects related to artificial turf. Doing so has been proven to identify and effectively address unnecessary concerns. The USAPHC Health Risk Communication Program can provide training and/or consultation, upon request.

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