

Health advice to schools and kindergartens for reducing lead exposure

What is lead?

- Lead is a naturally occurring heavy metal. Lead and its compounds may be found in products such as batteries, paints, ceramics, solder and additive to petrol.
- In everyday life, lead is found everywhere in our surrounding environment, usually generated by the combustion of fossil fuels, mining, industrial manufacturing, and other human activities, and exposure seems inevitable. Notwithstanding this, it is always good for health to achieve the lowest possible lead level in the body.

Health effects of lead

- Lead can enter the human body by ingestion, inhalation and skin absorption.
- When lead is absorbed into the body in excessive amount, it is toxic to many organs and systems. Depending on the lead level inside the body, significant exposure to lead is associated with a wide range of effects, including neurodevelopmental effects, anaemia, high blood pressure, gastrointestinal symptoms, impaired renal function, neurological impairment, impaired fertility and adverse pregnancy outcomes.
- Infants, young children under six, pregnant women and lactating women are more likely to be affected by its adverse effects.

How to reduce lead exposure in school settings:

Reduce the risk of lead exposure from tap water

- If lead should be present in the plumbing system, the longer water has been standing in the pipes, for instance, after several hours of non-use, overnight, over a weekend or after a holiday, the more lead it may contain. Flushing works by removing the water with the most lead from the drinking water system. Running water at a tap, usually for two to three minutes, prior to using it for drinking or food preparation will often reduce lead levels in the water. Taps should be flushed twice a day - in the morning before school starts and at midday before lunch time.
- As hot water increases the amount of lead that may leach from the pipe materials, use only cold water from tap and drinking fountain for cooking and drinking.
- Some domestic water filters (such as those certified by American NSF 53 Standard for removal of lead) can reduce the lead level in water. Nevertheless, no filter will give the claimed performance unless it is suitably designed for the intended use in schools and operated strictly according to the manufacturer's operational conditions with regular maintenance including timely change of core parts. Without proper maintenance, filters

may also become an ideal breeding ground for growth of micro-organisms. As chlorine level in water will be reduced by activated charcoal in the filters, the water from filters should be boiled to kill germs before drinking.

- Drinking fountain must be operated strictly according to the manufacturer's operational conditions with regular maintenance including timely change of core parts, in order to obtain its claimed performance.
- Students can also bring their bottled water.

Provide balanced school meals

- Provide balanced school meals as sufficient dietary intake of calcium, iron and vitamin C can help minimise lead absorption. Food sources of calcium include milk, tofu, and calcium-fortified soymilk. Meat, fish, and dark green leafy vegetables are rich in iron. Fresh fruits such as orange and kiwifruits are good sources of vitamin C.
- Provide iron-rich foods in school meals. Provide vitamin C rich fruit together with meals helps the body absorb iron from other foods.

Ensure food safety

- Before cooking, soak and wash vegetables, particularly leafy vegetables, thoroughly to remove dust and soil in order to reduce the level of lead.
- Avoid offering students under six, staff who are pregnant or lactating foods high in lead, such as lime preserved egg, oyster, and shellfish.

Ensure tableware safety

- Refrain from using colour painted ceramic tableware and cups unless the item is labelled "lead-free" or you are sure that the material used is safe.
- Do not store foods and drinks in crystal glassware.

Ensure safe stationery/toys

- Stationery/toys with paints of deeper colour may contain lead. School operators can verify with the retailers or manufacturers or check the product label for statements on the compliance with the ISO, EN 71, or ASTM F963-11 safety standards.
- Remove the stationery/toys if one is not sure whether they are safe for students.

Keep school clean and maintain good personal hygiene

- Remove dust in the school. Mop floors frequently, and use damp cloths or sponge to clean toys, windowsills and furniture etc.
- Students and staff should practise good personal hygiene, including washing their hands before they eat and sleep, as this help remove the lead dust on their skin.

Keep students away from items that may contain lead

- Some paints may contain lead. Fix the deteriorating paints and keep students away from it.
- Soil, damaged batteries and electronic devices.
- Teachers and staff should wash their hands after handling the above items.

More information concerning lead in drinking water can be found in the Department of Health's Centre for Health Protection website: <http://www.chp.gov.hk/en/content/40434.html>

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