

## **Health advice to residential institutions / day centres 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.
- Children under six are more prone to lead absorption than adults. Since they are at a rapid growing stage, their developing organs and tissues tend to be affected by lead more easily. Lead absorbed by pregnant and lactating women can pass to foetuses and infants indirectly.
- Lead is ubiquitous in our daily lives, so residential institutions / day centres should take appropriate precautionary measures to minimise residents' / centre users' lead absorption from food and surroundings. Once lead contact is stopped, the lead within our bodies will be gradually excreted in urine and bile.

### **How to reduce lead exposure in residential institution / day centre 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 work starts and at midday before lunch time.

- As hot water increases the amount of lead that may leach from the pipe materials, use only water from the cold-water tap for cooking and drinking. Cold water drawn from tap should be boiled or heated before 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 residential institutions / day centres 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.
- Since the absorption of inorganic lead via skin is not effective, use of water from the affected buildings for any purpose other than ingestion, such as showering, tooth brushing and face washing, should not pose a health threat.
- Use a safe water source, such as bottled distilled water instead of tap water, for drinking, cooking, and preparing formula milk or drinks. When any of the residents / centre users needs tube feeding, ready-to-feed formula products can be an option.

#### Provide balanced meals

- Provide balanced meals in residential institutions / day centres as sufficient dietary intake of calcium, iron and vitamin C can help minimise lead absorption by residents / centre users. 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 residents' / centre users' diet. Consuming 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 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.

*Keep residential institutions / day centres clean and maintain good personal hygiene*

- Keep the air ventilated and environment clean at the institutions / centres. Mop floors frequently, and use damp cloths or sponge to clean windowsills and furniture etc. to reduce the accumulation of dust.
- Residents / centre users and staff should practise good personal hygiene and wash hands before they eat. For the residents / centre users who are in need, wash their hands and faces regularly so as to reduce the accumulation of dust possibly containing lead on their bodies.

*Keep residents / centre users away from items that may contain lead*

- Some paints may contain lead. Fix the deteriorating paints and keep residents / centre users away from it.
- Soil, candles, damaged batteries and electronic devices may also contain lead.
- Residents / centre users 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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