

**For information
on 24 August 2015**

LEGISLATIVE COUNCIL PANEL ON HEALTH SERVICES

Public Health Measures for the Lead in Drinking Water Incidents

PURPOSE

This paper sets out the Administration's public health measures for the lead in drinking water incidents.

BACKGROUND

Health effects of lead

2. If lead is absorbed into the body in excessive amount, many organs and functions in the body will be affected. Depending on the level of lead inside the body, the effects include neurodevelopmental effects, anaemia, high blood pressure, gastrointestinal symptoms, impaired renal function, neurological impairment, impaired fertility and adverse pregnancy outcomes.

3. If the lead level in the drinking water exceeds the provisional guideline value of the World Health Organization's ("WHO") Guidelines for Drinking-water Quality¹, the top priority is to identify and remove the source of lead exposure. When exposure stops, the lead in the body and the blood lead level will gradually reduce through excretion in urine and bile. Separately, lead absorption can be minimised by maintaining a healthy diet with sufficient intake of calcium, iron and vitamin C.

4. Whole blood lead level is internationally recognised as the most accurate and reliable method for screening and diagnosis to assess the risk of lead on health. Hair and urine tests for lead are not suitable

¹ The provisional guideline value of safe drinking water set out in the WHO's Guidelines for Drinking-water Quality is 10 micrograms per litre.

for screening and diagnosis.

Public health measures adopted by the Administration

5. Since the Housing Department announced on 10 July 2015 that the test results of drinking water in Kai Ching Estate indicated the lead content exceeded the provisional guideline value of the WHO, the Food and Health Bureau, the Department of Health (“DH”) and the Hospital Authority (“HA”) have, after reviewing the relevant literature and research from local medical sectors and overseas health associations, defined the groups which are more easily affected by lead as children aged below six, pregnant women and lactating women and decided to arrange blood lead testing for them if they are residents of the affected public estates. As for follow-up measures on health, the experts of the DH and the HA, taking into account the aforementioned literature and research, have jointly established the reference value for blood lead level in human bodies and developed care plan for different blood lead levels, in order to ensure that the health situation of the residents are looked after as appropriate. For the more easily affected groups (namely, children, pregnant women and lactating women), a blood lead level equal to or more than 5 microgram per decilitre requires further assessment. For adults, a blood lead level equal to or more than 10 microgram per decilitre requires further assessment. Please see **Annex** for the details of the care plan. The Government is particularly concerned about the children whose blood lead level exceeds the reference value. Although the blood test results of the relevant children indicate borderline raised blood lead level, we understand that parents are very worried about the potential health risks and impacts on development brought to their children. Besides implementing the care plan set out at Annex, the DH also makes special arrangements for these children to receive developmental assessment.

6. In order to provide health information to the affected residents in a timely manner, the DH immediately set up a hotline providing enquiry service on 10 July. Since 11 July, the hotline also provides health advice and arranges blood lead testing appointments for households with water samples tested to have elevated lead level as well as for residents of the affected public estates who fall into the more easily

affected groups, namely children aged below six, pregnant women and lactating women. Without affecting the daily healthcare services, the HA has arranged individual public hospitals to provide blood taking service for the aforementioned persons. On the day of the appointment, the Housing Department will arrange transportation for the residents from and to the public hospitals concerned. Considering the request of residents, the Administration expanded the scope of blood testing on 21 July to children who were under six years old at the time when moving into Kai Ching Estate, Kwai Luen Estate (Phase 2) and Wing Cheong Estate. Subsequently on 3 August, in view of the latest developments, the Administration adjusted the scope of blood testing to children aged below eight, pregnant women and lactating women.

7. When the Administration has confirmed the lead content in the drinking water of a public estate exceeds the WHO's provisional guideline value, the representatives of the DH and other relevant departments will attend residents forum to listen to health concerns of the residents and provide health advice. The DH will also distribute a letter enclosing a health factsheet to each household of the relevant public estates to explain the health impacts of lead and invite residents who belong to the more easily affected groups to make appointments for blood testing through the DH's hotline. On the other hand, the DH will approach the households with water samples tested to have elevated lead level individually for a quick assessment of health situation and provide advice on safe water use. Blood testing for lead is also offered to these households upon request.

8. In addition, the DH organises community health talks for the residents of the affected public estates and invites professionals to explain the potential health impact of excessive lead consumption and provide psychological advice. Health talks for the relevant residents were organised on 28 July for Kai Ching Estate, 31 July for Kwai Luen Estate (Phase 2), 7 August for Wing Cheong Estate, 14 August for Lower Ngau Tau Kok Estate and 18 August for Shek Kip Mei Estate. The DH is organising similar health talks for the residents in other affected public estates, including Hung Hum Estate, Tung Wui Estate, Yan On Estate, Choi Fuk Estate, and Un Chau Estate.

9. The DH and the HA also disseminate health information on lead to the general public and affected residents through different channels. For instance, the DH has set up a thematic webpage (<http://www.chp.gov.hk/tc/content/40434.html>) on the website of the Centre for Health Protection since 10 July and has uploaded a series of pamphlets and videos, including health advice on lead in the drinking water, frequently asked questions, care plan, relevant press releases and the test results of water samples taken from public estates. In addition, the HA has uploaded relevant pamphlets on the HA website and distributed them to persons who attend the blood taking sessions at the HA hospitals.

LATEST DEVELOPMENT

Follow-up situation

10. As at 9 pm on 19 August, the DH's hotline has received 5,856 telephone enquiries and arranged 3,887 appointments for blood testing. Separately, as at 20 August, the HA has conducted tests on blood lead level for 1,773 residents, of which 1,647 residents (about 93%) have normal blood lead level. 126 residents were found to have borderline raised blood lead level, ranging from 5 to 15 microgram per decilitre which indicates potential health risk. Among them, 96 are children, 27 lactating women and three pregnant women.

11. According to the established care plan, the DH and the HA have followed up jointly on the health condition of those who have borderline raised blood lead level. The DH have contacted the relevant persons to understand the possibility of lead exposure in their daily life, arranged preliminary development assessments to children and provided follow-up services as appropriate.

Blood testing capacity

12. To cope with the blood testing demand, the HA has made arrangements to increase the blood taking capacity as far as possible,

which include increasing the number of sessions and public hospitals for blood taking service without affecting the normal operation of the public hospitals. Currently, the HA has arranged seven hospitals to provide additional blood taking service at weekends. They are the United Christian Hospital, Princess Margaret Hospital, Queen Elizabeth Hospital, Prince of Wales Hospital, Pamela Youde Nethersole Eastern Hospital, Kwong Wah Hospital and Caritas Medical Centre. The HA has increased the service capacity of its laboratory. By increasing the blood taking capacity at hospitals and blood testing capacity at laboratory in parallel, the weekly quota of blood testing can be increased from 360 to 720 or above by the end of August. In addition, the HA has also been considering means to increase the blood testing capacity, which include purchasing new blood testing equipment, sending blood samples to overseas accredited laboratories for testing and collaborating with local private hospitals for providing additional blood taking service.

ADVICE SOUGHT

13. Members are invited to note the content of this paper.

**Food and Health Bureau
Department of Health
Hospital Authority
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Persons below 18-year-old, pregnant women and lactating women

Whole blood lead level (microgram/dL)	Health risks	Care plan
< 5	<ul style="list-style-type: none"> • Normal level • No significant health risk • No follow-up required 	<ul style="list-style-type: none"> • DH will inform the residents concerned by phone and by mail about the results
5 - 44	<ul style="list-style-type: none"> • Borderline raised level • Potential health risk • Health evaluation and follow-up required 	<ul style="list-style-type: none"> • DH will perform exposure assessment • HA will arrange health evaluation and follow-up • Blood lead level will be monitored
> 44	<ul style="list-style-type: none"> • Significantly raised level • Risk of lead poisoning • Need medical assessment and follow-up 	<ul style="list-style-type: none"> • DH will perform exposure assessment • HA will arrange medical assessment and follow-up • Blood lead level will be monitored

Adults

Whole blood lead level (microgram/dL)	Health risks	Care plan
< 10	<ul style="list-style-type: none">• Normal level• No significant health risk• No follow-up required	<ul style="list-style-type: none">• DH will inform the residents concerned by phone and by mail about the results
10 - 50	<ul style="list-style-type: none">• Borderline raised level• Potential health risk• Health evaluation and follow-up required	<ul style="list-style-type: none">• DH will perform exposure assessment• HA will arrange health evaluation and follow-up• Blood lead level will be monitored
> 50	<ul style="list-style-type: none">• Significantly raised level• Risk of lead poisoning• Need medical assessment and follow-up	<ul style="list-style-type: none">• DH will perform exposure assessment• HA will arrange medical assessment and follow-up• Blood lead level will be monitored