LEAD POISONING IN BANGLADESH

TARGETS

SDG 12.4: Achieve environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil to minimize their adverse impacts on health and the environment.

WHAT IS AT STAKE

A staggering 35 million children in Bangladesh have high levels of lead in their blood.

Two recent studies by UNICEF, IEDCR and icddr,b in Bangladesh found lead in the blood of 100 percent of children tested – a total of 980 children in four districts and 500 children in Dhaka city. About 40 to 80 percent of the children had very high blood lead levels above 5ug/dl. Other studies have also confirmed lead in turmeric, toys, paints, aluminum and ceramic cookware and some food items in Bangladesh.

Informal recycling of used lead acid batteries (ULAB) is one of the major sources of lead exposure. In a survey conducted in 2020, more than 1,100 informal ULAB sites were identified around Bangladesh.

The purpose of this policy brief is (1) to describe existing policies and programs related to lead, health systems readiness to combat lead pollution, and community awareness about lead poisoning in Bangladesh; and (2) provide recommendations based on a study[1] conducted in 2022 by icddr,b and UNICEF.

1 Methodology: The study was conducted in Sylhet & Patuakhali districts (low concentration of ULAB recycling sites) and Tangail & Khulna districts (high concentration of ULAB sites) between January and April 2022. Data were collected through desk review and policy analysis of the extent to which lead pollution prevention was addressed, stakeholder mapping; health care provider interviews to assess health facility and health system readiness to address lead poisoning; knowledge, attitude and practice survey of 732 adolescents and mothers of young children to understand the perspective of at-risk group regarding lead poisoning; interviews and focus group discussion with community leaders, community members and ULAB workers to understand community awareness of lead poisoning.

POLICY CONTEXT

Environmental health, including lead pollution, has limited reflection in official documents of the Government of Bangladesh. Of the 35 policy documents which address environmental pollution and health in Bangladesh, only 12 named lead as a pollutant. Only one environmental policy document mentioned specific activities related to prevention of lead pollution. In four other policy documents, lead was mentioned merely as part of a general safety standard. The documents did not address informal sectors such as ULAB recycling, and no provisions were made for detection of lead exposure at the community level.

ENVIRONMENT
9
policies

Department of Environment (DOE) of the Ministry of Environment, Forest and Climate Change (MOEFCC) has instituted several regulatory measures that include ban on the use of leaded petrol, lead decorative paint and statutory regulatory orders (SRO) to control production and recycling of lead acid batteries. However, a lot more needs to be done as the sources of lead pollution are diverse, and the role of MOEFCC is crucial as the leading ministry.

INDUSTRY
2
policies

In the health sector policy documents, lead was specifically mentioned in the operational plan of the Non-Communicable Disease Control (NCDC) program. NCDC hosts a multisectoral coordination committee in which the DOE addresses issues around prevention of lead contamination in food and cosmetics. However, the role of the health sector in the committee was limited to advocacy. Health sector policy documents do not address identification and treatment of lead poisoning.

HEALTH
12
policies

LABOR
7
policies

Labour policies focused only on protecting and providing compensation for formal factory workers from injury, and disability from occupational hazards. Lead poisoning was not considered among these occupational hazards. There were also no provisions mentioned for workers in the informal sector.

FOOD AND AGRICULTURE
5
policies

The Bangladesh Food Safety Authority has set standards on food safety and prohibits the use of toxic chemicals and heavy metals during food production. However, there was no specific mention of a monitoring mechanism for identifying food adulteration.

Stakeholder interviews revealed that most policies focused on regulating formal industries. Unfortunately, limited resources and inadequate infrastructure impede the monitoring of industrial pollution and enforcing the regulations. The situation is even worse in informal sectors, where resource gaps and lack of intersectoral collaboration prevents identification of polluting entities. Furthermore, stakeholders from the health sector indicated that the health impacts of environmental pollution had not received much attention as there was no strong evidence to attribute lead pollution to morbidity and mortality in Bangladesh.

HEALTH SYSTEMS AND LEAD POLLUTION

Out of 16 medical doctors (14 general physicians and 2 pediatricians) interviewed, most knew that lead was an environmental pollutant that can adversely affect health, but they could not list the specific health impacts. Only a few doctors mentioned sources of lead poisoning such as industrial or vehicular fumes, cigarette smoke, contaminated foods, metal shards, machinery, cosmetics, batteries, water pipes and paints. Their source of information was from the media and medical textbooks. Most medical doctors felt that lead pollution was only a problem in urban and industrial areas. Eighteen (18) medical technologists and health workers interviewed had limited knowledge of lead or its health impacts.

From the perspective of healthcare providers, barriers within the health system to address lead poisoning included lack of awareness and training among health care providers, lack of treatment guidelines, and asence of facilities to detect and manage lead poisoning.

> **We have neither seen any activities nor received any training on lead poisoning. If we had proper orientation, then maybe we could identify (lead poisoning).**
>
> – Family Welfare Visitor, Khulna

STATE OF HEALTH SYSTEM READINESS

Leadership/governance: Lead pollution has not received priority attention

Service delivery: Absence of treatment guidelines and referral mechanisms

Financing: No budget has been allocated for prevention and management of lead poisoning

Human resources: No specific training provided to health care providers on aspects of lead poisoning

Information: There is no reporting mechanism for lead poisoning in the health system

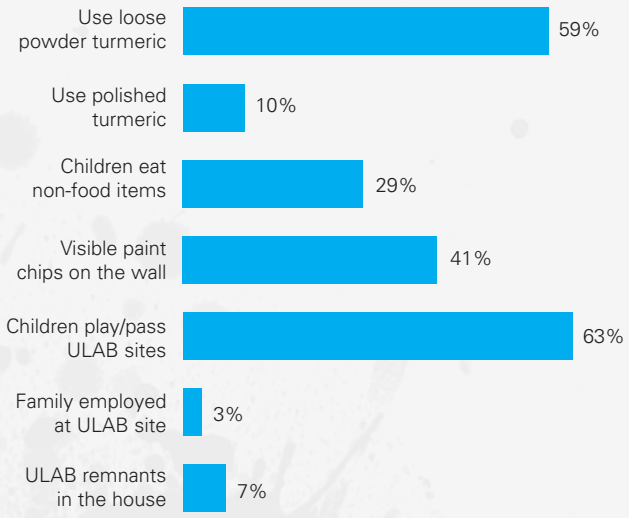
Medical products & technologies: Health facilities and laboratories are not equipped with diagnostic tests to detect lead poisoning

KNOWLEDGE, RISK PERCEPTON AND PRACTICE

There is insufficient knowledge among the population on the risk of lead and how to avoid it. Among 732 caregivers of young children and adolescents surveyed, 60% had heard the name of "lead" and knew some of its common uses in utensils and batteries. Adolescents interviewed who lived close to ULAB sites, and those who lived in districts with high concentration of ULAB sites had better knowledge about lead than their adolescent counterparts without these proximate exposures. Community members, despite little knowledge about lead, linked the ULAB business to health problems in their communities. Mothers of young children living near ULAB recycling sites talked about fumes from the ULAB businesses causing coughs, colds, shortness of breath, pneumonia, dryness of skin, dizziness, depression, and cancer.

Figure 1: Risk perception

Figure 2: Practices related to lead exposure



Among mothers and adolescents who were aware of lead, the risk perception was high (86%). Only 33% thought it was easy to reduce the risk of lead pollution, and 71% of the respondents thought that lead contamination is controllable (figure 1).

In the study communities, there were many sources of potential lead exposure (figure 2). Major sources of exposure included use of loose turmeric powder, having visible paint chips on the wall, children chewing on nails and pencils, and children playing or passing by ULAB sites.

FRAMEWORK FOR ACTION

Strengthening the health system

1. Director General of Health Services (DGHS)/ Ministry of Health and Family Welfare (MOHFW) to conduct national assessments and periodic blood lead level surveillance linked with source identification and take actions to protect children's health from environmental risks.

2. DGHS of the MOHFW to invest in capacity development of healthcare professionals and strengthen diagnostics and management of leadpoisoning, especially among children.

3. MOHFW and MOEFCC to create a knowledge hub to bring together research, academia, and advocacy organizations to support the research and policy agendas around the health impacts of environmental pollution.

Influencing policy and action

4. MOHFW and MOEFCC and other relevant ministries to develop a multi-sectoral strategy and action plan to effectively respond to lead and other environmental pollutants in Bangladesh.

5. MOEFCC, Ministry of Food, Agriculture, Labour, Industry, Commerce to monitor and enforce industry compliance to all health, labour, consumer, and environmental laws and standards, and require businesses to adhere to human rights and environmental due diligence that integrates child rights.

6. MOEFCC/DOE to invest resources in source identification and remediation of toxic sites.

7. Ministry of Commerce, Industry and relevant Government agencies to provide an enabling environment for marketing of lead-free products, review taxes of imported lead-based raw materials to encourage safer lead-free alternatives, and institute tax revisions to stimulate adoption of green business approaches.

8. MOEFCC can take the leadership role along with MOHFW in coordinating prevention, control, and management of lead pollution in Bangladesh.

Raising awareness and engaging the community

9. DGHS/MOHFW to launch national awareness campaigns to address lead exposure through multiple media channels including engagement of youth in schools and communities.

10. DGHS/MOHFW to develop and disseminate social and behaviour change communication materials on health impact of lead and other environmental pollutants and empower communities to take preventive action.

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