MINISTRY OF INTERNALLY DISPLACED PERSONS FROM THE OCCUPIED TERRITORIES, LABOUR, HEALTH AND SOCIAL AFFAIRS OF GEORGIA

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GEORGIAN NATIONAL CENTER FOR DISEASE CONTROL AND PUBLIC HEALTH

GEORGIA *Brief 2020*

Lead Problem in Georgia

Lead is one of the most dangerous toxicants with devastating long term effects on environment, economic development and public health. Lead poisoning can lead to developmental, behavioural and neurological disorders, anaemia, tiredness and muscle weakness, as well as kidney and liver damage.

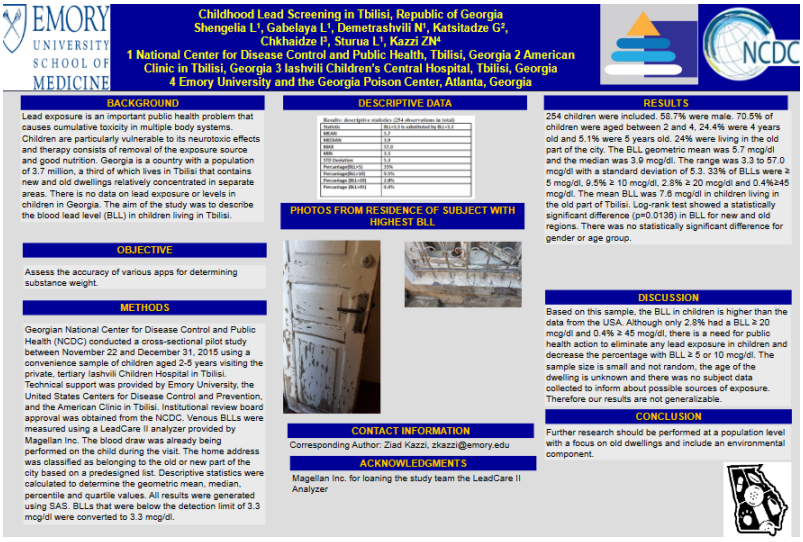
The Institute for Health Metrics and Evaluation (IHME) estimated that in 2016 lead exposure accounted for 540 000 deaths and 13.9 million years of healthy life lost (disability-adjusted life years (DALYs)) worldwide due to long-term effects on health. The highest burden was in low- and middle-income countries.

Sources of exposure to lead - paint; dust; soil; drinking water; air; folk medicines and cosmetics; children's jewelry and toys; workplace and hobbies; lead-glazed ceramics, china, leaded crystal, pewter; imported candies or foods; etc.

People can become exposed to lead through occupational and environmental sources. This mainly results from: inhalation of lead particles generated by burning materials containing lead, for example, during smelting, recycling, stripping leaded paint, and using leaded gasoline or leaded aviation fuel; and ingestion of lead-contaminated dust, water (from leaded pipes), and food (from lead-glazed or lead-soldered containers).

In 1999, Georgian law mandated a maximum lead content in gasoline of 13mg/liter. A scheduled phase-out of lead in gasoline was ordered in 2000, defining a maximum allowable lead concentration of 5mg/liter by 2005, which was later delayed until 2007 due to difficulties with enforcement and possible negative social factors. This year the government has re-implemented mandatory inspection.

In recent years, reports of lead poisoning/contamination have dramatically increased in Georgia. NCDC and the U.S. CDC conducted a small sample lead survey (254 children 2-5 years of age) in 2015 at the Iashvili Children's Hospital in Tbilisi. The test results were dramatic with 33% of participants having lead levels ≥5µg/dl. In December 2015 in Bolnisi and Dmanisi rayons 46 children aged 4-6 years were investigated and in 30.4% of participants blood lead levels were ≥5µg/dl.



In 2017-18 the follow-up survey was conducted and approximately 37% of the studied population had a BLL greater between 5 mcg/dl. Alongside with BLL environmental samples (water, food, soil, and air) were taken and analyzed by the National Food and National Environmental Agencies. None of the food and water samples showed elevated levels. Just 10 soil and air samples are yet analyzed and among then all air samples were normal but 2 soil samples have much higher levels (129 and 108 mg/kg with highest acceptable level of 32 mg/kg).

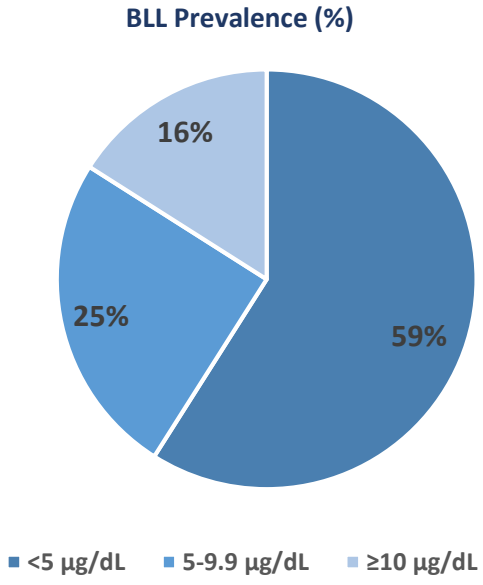
In 2011, 2015 and 2017 New York Health Department found especially high levels of lead in Georgian spices as well as in the blood of Georgian expats living in New York. In 2017 and 2018 the Georgian Food Safety Authorities also found similarly high lead levels in spices sold in the streets and supermarkets of the country. Tbilisi State University conducted two studies in 2014 and 2017 in southern part of Georgia (Bolnisi and Dmanisi) showing that already high contamination of soil by lead, mercury and cadmium increased several times in 2017 compared with 2014.

In March 2018 paint and toys were tested in randomly selected schools and kindergartens in Tbilisi and the neighboring city of Rustavi, even recently constructed school/kindergarten classrooms appeared to be colored with lead paint, while the toys used for kids to play contained excessive levels of lead. According to a report toys sold in Georgia, among other harmful metals, contain high levels of lead, while according to IPEN, the same is true in terms of lead content in the paints sold/used in the country. This is further corroborated by the Georgia's Health Minister's February 2018 address to the country's Parliament.

Nationally representative study measuring blood lead levels (BLL) among children 2-7 years of age was conducted in Georgia in September-December 2018. For that, the BLL study was integrated in Multiple Indicator Cluster Survey (MICS) - one of the largest household surveys worldwide. The survey field work lasted for three months and collected high quality, internationally comparable data on the situation of families, children and women throughout the country. MICS was implemented in the country by the National Statistics office with technical and financial support from UNICEF, the National Center for Disease Control and Public Health (NCDC) and Italian Institute of Health.

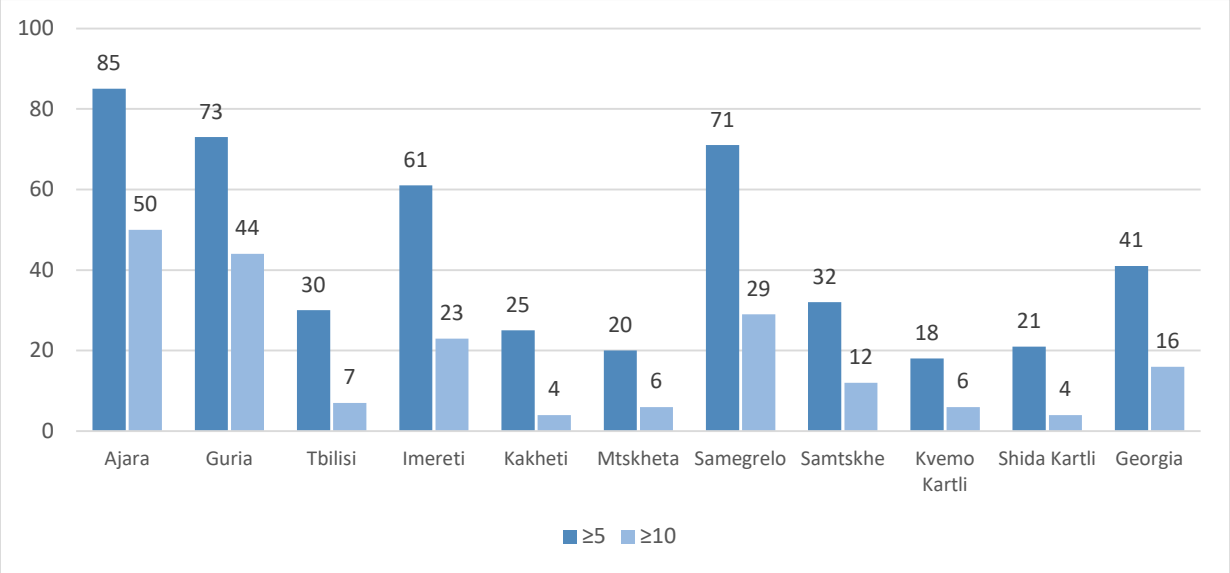
During the study, venous blood samples were collected from 1578 randomly selected children 2-7 years of age across Georgia, providing nationally representative indicators of lead prevalence. Collected Blood samples were sent to the laboratory of Italian Institute of Health, one of the leading public health institutions in Europe. These blood samples were analyzed by Inductively Coupled Plasma Mass Spectrometry (ICP MS) that is a gold standard method in lead testing.

The MICS results showed that countrywide BLL (≥5 µg/dl) prevalence among children 2-7 of age is 41%; 25% has BLL between 5 - 10 µg/dl and BLL ≥ 10 µg/dl is in 16%; 16 children (~1%) has BLL >30 µg/dl.



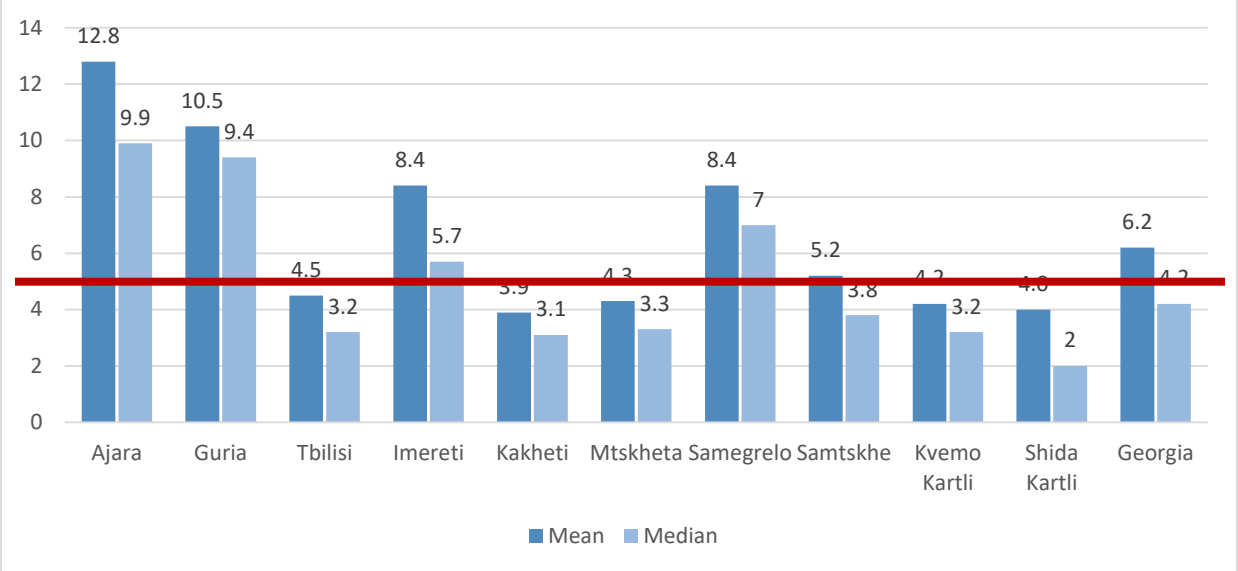
Prevalence of elevated BLL is higher in west Georgia with the highest data in Ajara; results are higher in rural settlements.

≥5 µg/dL and ≥10 µg/dL lead Prevalence (%) by regions



Mean BLL is 6.2 µg/dl and median BLL – 4.2 µg/dl.

Mean lead concentration (µg/dL) by regions



State Response

Immediate response

1. 16 children (with BLL≥30 µg/dL) and members of their families were tested (NCDC, pediatrician, National Environment Agency)
2. Based on recommendations of the US Centers for Disease Control and Prevention and American Academy of Pediatrics, the Ministry of Health approved clinical protocol of Early Identification of Toxic Effect of Lead

in Children and Management Measures which aims at prevention of harmful effect of lead, timely identification of lead level alleviation and efficient management of cases.

3. Lead Exposure Assessment by the international NGO "Pure Earth"
   - Lead containing paints are not prevalent in the country; soil pollution is at a low level; water is not a source of exposition; spices containing lead are very prevalent and in some cases concentrations are extremely high; blood lead level varies with the lead contamination level and period in spices which indicates spices should be considered as the main source of lead poisoning.

Long-term strategic response

1. „National Environmental Health Action Plan 2018-2022 NEHAP 2" approved by the Government of Georgia
2. Inter-sectoral Coordination Council under the leadership of the Prime Minister established
3. Government of Georgia order on "Early Identification of Toxic Effect of Lead in Children and Management Measures "
4. Early Disease Detection and Screening state program with blood lead level bio monitoring component
   - 2019 - All children with BLL ≥5 µg/dl participating in the MICS survey, members of their families up to 18 years of age and pregnant women tested, treated and given relevant recommendations
   - 2020 - referring children under 7 years of age by pediatrician or general practitioner to be tested for lead poisoning. Children with BLL≥5 µg/dl receive medical services and medications; members of their families up to 18 years of age and pregnant women tested, treated and given relevant recommendations.
5. Lead component of the Health Promotion State Programme
6. Lead Prevention and Control Multisectoral Longterm Action Plan elaborated and ready for endorsement
7. Development of the laboratory based epidsurveillance system with technical and financial support of UNICEF

Future Steps

- Follow-up Research of Sources of lead exposure in the country
- Regulation, inspection, enforcement, mitigation
- Human resources development
- Multisectoral collaboration
- Comprehensive Communication campaign
- Prevent market circulation of lead contaminated products and materials through better regulation and.