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## SURVEY ON LEAD PREVALENCE IN CHILDREN'S BLOOD IN GEORGIA

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.

### RESULTS

There is no known level of lead exposure that is considered safe for human beings. Yet, 5 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ) of whole venous blood is the reference level at or above which the WHO and U.S. Center for Disease Control recommend public health action be initiated.

Countrywide BLL prevalence at  $\geq 5 \mu\text{g}/\text{dL}$  is 41%, between 5 - 10  $\mu\text{g}/\text{dL}$  is 25%, and at BLL  $\geq 10 \mu\text{g}/\text{dL}$  is 16% among children 2-7 of age.

$\geq 5$   
 $\mu\text{g}/\text{dL}$



**41%**

$\geq 10$   
 $\mu\text{g}/\text{dL}$



**16%**

CHILDREN AGED 2-7 WITH ELEVATED BLL

## LEAD PREVALENCE BY REGIONS

REGION	≥5 µg/dL	≥10 µg/dL
ADJARA	85%	50%
GURIA	73%	44%
TBILISI	30%	7%
IMERETI	61%	23%
KAKHETI	25%	4%
MTSKETA-MTIANETI	20%	6%
SAMEGRELO, ZEMO SVANETI	71%	29%
SAMTSKHE-JAVAKHETI	32%	12%
KVEMO KARTLI	18%	6%
SHIDA KARTLI	21%	4%
<b>TOTAL:</b>	<b>41%</b>	<b>16%</b>

## HEALTH EFFECTS OF LEAD ON CHILDREN

Lead exposure can have serious consequences for the health of children. At lower levels of exposure that cause no obvious symptoms, and that previously were considered safe, lead is now known to produce a spectrum of injury across multiple body systems. In particular, lead can affect children's brain development resulting in reduced intelligence quotient (IQ), behavioural changes such as reduced attention span and increased antisocial behaviour and reduced educational attainment. Lead exposure also causes anaemia, hypertension, renal impairment, immunotoxicity and toxicity to the reproductive organs.

Exposure of pregnant women to high levels of lead can cause miscarriage, stillbirth, premature birth and low birth weight.

## RECOMMENDATIONS

- Determine major sources of lead exposure in the country.
- Multiyear lead remediation government plan envisaging short, medium as well as long term measures to neutralize, isolate and manage lead contaminated sites should be elaborated. Relevant state agencies including those on local government level must be engaged in the process.
- Prevent market circulation of lead contaminated products and materials through better regulation and enforcement.
- An effective public awareness raising campaign on individual measures households can employ to prevent/mitigate lead exposure.