**Topic:** lead exposure

**Title:** Blood lead levels and potential environmental exposures among children under five years in Kibera slums, Nairobi.

**Conclusion:** In Nairobi, lead exposure is common in slums, possibly from high soil lead levels.

**Authors:** Olewe TM, Mwanthi MA, Wang’ombe JK, Griffiths JK.

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**Context:** Kibera slums, Nairobi Kenya

**Abstract:** Lead exposure has been associated with intellectual impairment in children in a number of international studies. Prevalence of elevated blood lead levels (eBLL > or = 10ug/dL) of between 5 - 15% has been reported among in Nairobi (UNEP, 2006). However, little is known about potential environmental exposure for eBLLs among children in Kibera, Nairobi. METHODS: A descriptive, cross-sectional study of children drawn from Kibera slums who presented at Yes to kids (Y2K) programme of VIPS Health Services at Woodley, Nairobi between June and August 2007 was carried out. The study assessed potential correlates of eBLLs in 387 children aged 6 to 59 months and had lived in Kibera slums since birth. Sampling was purposive. The factors examined were age, sex, breastfeeding history, respondent's education and occupation, type of house walls, sources of drinking water and kales, and awareness of lead poisoning among respondents. Potential risk factors such exposure to paint, contaminated playgrounds, glazed pottery, cosmetics and para-occupational as well as living near lead industry and pica behavior were also examined. Potential environmental sources of lead such as drinking water, soil and kales were analyzed for lead levels. RESULTS: Seven percent (n = 27, N = 387) had BLLs above 10ug/dl. BLL > or = 10ug/dl was associated with non-permanent housing (p = 0.812), playing on potentially lead contaminated grounds (p = 0.627) and pica behavior (p = 0.439). Low risk parental occupation (p = 0.001) and Kales sourced from the market/kiosks (p = 0.001) were significantly associated with BLL > or = 10ug/dl. Soil lead levels (Soil Pb) ranged from 3,000 to 90,000ug/kg, which was very high compared to WHO acceptable range of 100 - 200ug/kg. There was weak linear association (r² = 0.0160) between Soil Pb and mean BLLs for a given village. There were no detectable levels of lead in kales and tap water. CONCLUSIONS: The study found about 7% (N = 387) of the children tested had eBLL > or = 10ug/dl in an area with very high soil lead levels (range in Kibera slums: 3,365 - 89,570ug/kg; WHO allowable range: 100 - 120ug/kg), raising a health flag that must be addressed using the multi-sectoral approach and further studies. It's important to note
that the study design and its inherent limitations could have masked true picture of childhood lead poisoning in Kibera slums, Nairobi.

**Policy Implications:** About 7% of children living in slums of Nairobi had elevated lead levels.

**Keywords:** lead, poverty