

Blood lead levels of urban and rural Malaysian primary school children

Abstract

The objective of this article is to study the influence of exposure and socio-economic variables on the blood lead level of Malaysian school children. Data on respirable lead and blood lead of 346 school children were obtained from Kuala Lumpur (urban), Kemaman (semi-urban) and Setiu (rural). Respirable lead and blood lead were highest for Kuala Lumpur (95 ng/m³ and 5.26 µg/dL) followed by Kemaman (27 ng/m³ and 2.81µg/dL) and Setiu (15 ng/m³ and 2.49 µg/dL), and the differences were statistically significant. The percentage of school children with excessive blood lead of 10 µg/dL or greater was 6.36 % overall, and highest for Kuala Lumpur (11.73 %). Regression analyses show that urban children are at higher risk of exhibiting excessive blood lead levels. Kuala Lumpur's school children have a 25 times greater risk of having excessive blood lead levels when compared to Kemaman's and Setiu's school children. Respirable and blood lead were correlated ($r=0.999$, $p=0.021$). Urban school children acquire higher blood lead levels than their rural and semi-urban counterparts, even after controlling for age, sex, parents' education and income levels. In conclusion, it is time that lead in the Malaysian environment and population be monitored closely, especially its temporal and spatial variability. Only then can a comprehensive preventive strategy be implemented.