

Blood Lead Levels and Risk Factors in a Low-Income Latino Population in Seattle, WA USA

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Background and Aims

This study determined blood lead levels (BLLs) and predictors in a low-income urban Latino pediatric population in the northwestern United States (Seattle, WA). Surveillance for lead exposure is historically rare in this region.

Methods

Study subjects comprised a cross-sectional sample of 278 children ages 1 to 6 years attending a clinic serving largely Mexican American and Central American immigrant families. An interviewer administered questionnaire was conducted with the child's caregiver. Measurement of BLL was done using an ESA Lead Care II analyzer. Comparison to national data and multivariate analysis of known and suspected risk factors was performed.

Results

The geometric mean BLL was 1.43 $\mu\text{g}/\text{dL}$ (95% CI: 1.13, 1.79). For comparison, nationally representative data from 2007-2008 estimated the geometric mean BLL for children under age 6 years was 1.51 mcg/dL (95% CI: 1.37, 1.66). Most (252, 91%) had a BLL lower than the Lead Care II limit of detection, 3.3 $\mu\text{g}/\text{dL}$. Two children's (0.7%) BLL was higher than 5 $\mu\text{g}/\text{dL}$. None were above 10 $\mu\text{g}/\text{dL}$.

The most informative predictor of detectable BLL included nationality other than the US or Mexico (OR=16.1; 95% CI: 1.6, 220.7), living in homes built before 1950 (OR=5.1; 95% CI: 1.4, 16.9) and observed to put paint chips in the mouth (OR=3.6; 95% CI: 1.1, 11.2). Culturally specific risk factors such as ingesting Mexican candies, use of home remedies, and use of ceramic or clay food receptacles were not associated with elevated risk of a detectable BLL.

Conclusions

Lead exposure in this urban Latino population appeared comparable to observations in other U.S. children. Sample size and power to fully investigate exposure risk factors was a limitation. These preliminary data support targeted screening based on lead based paint and immigration status as conducted in other pediatric U.S. populations.