Objective. To determine the lead concentration in the blood of children and nursing or pregnant women from San Ignacio, Fresnillo, in Zacatecas, Mexico as well as in soil, plants, ash and lead-glazed pottery, in order to determine exposure due to a metal-recycling facility. Material and Methods. The study was carried out from December 2004 to April 2005. Lead in blood was measured with anodic stripping voltammetry, while dispersive energy X-ray fluorescence was used in the other matrices. Results. Based upon the criteria outlined in the Official Mexican Standards, 90% of the children was identified as category I, 5% as category II and another 5% as category III. The soil in the land near the facility contained from 73 to 84 238 µg/g, with an average of 4940 µg/g. Larger lead concentrations were found on sites located closer to the facility. San Ignacio’s soil contained, on average, 109 µg/g. High lead levels were found in glazed pottery and the concentration in agricultural crops was greater than 300 µg/g. Conclusions. Although the majority of children in San Ignacio have blood lead concentrations considered to be acceptable according to the Official Mexican Standards, several studies indicate that deleterious effects on children’s health exist even at low concentrations. The land around the metal recycling facility is contaminated with lead, and to that extent, the crops that are produced there, once ingested, are a source of contamination, which is compounded by the use of glazed pottery.

Keywords
child; lead poisoning; blood; soil; Mexico