## Blood Lead Concentrations and The Neuropsychology Scores of Pregnant Women in Klang Valley, Malaysia

## ABSTRACT

Pregnant women with high blood lead posed a high risk to their fetus as the placental transfer can occur to the fetus. The objective of this study was to identify the relationship between blood lead and the neuropsychological score of women who were in their 3 rd trimester of pregnancy. These respondents were undergoing a routine antenatal checkup at a teaching hospital located in Klang Valley areas. Blood lead concentrations were analyzed using graphite furnace Atomic Absorption Spectrophotometer (AAS). The neuropsychological scores were measured with WHO Neurobehavioral Core Test Battery (NCTB). The test consists of 7 items, which made up of the Digit Symbol, Trail Making, Digit Span, Benton Visual Retention Test, Pursuit Aiming, Santa Ana Manual Dexterity, Reaction Time and Movement Time tests. The mean blood lead was 7.78±4.77 µg/dL. The mean score for the total NCTB test was 50.00±5.24. Statistical analysis showed blood lead concentrations were inversely correlated with the total NCTB score (r=-0.462,  $p \le 0.01$ ). The correlation was about 21.3%. The General Linear Model (GLM) showed that age ( $\beta$ =-0.15, p=0.017), weight ( $\beta$ =2.67, p=0.05) and height  $(\beta = -1.97, p = 0.05)$  also influence the total neuropsychological scores. In conclusion, blood lead reduces the total neuropsychological scores. The scores for each of the 7 items were inversely and significantly correlated with blood lead concentrations except for the Trail Making and Santa Ana Manual Dexterity tests.