

## ABSTRACT

### **Effects of exposure to lead in the air on the levels of lead, Hemoglobin, serum Cystatin C and health complaints in car painting workers at Surabaya**

Increasing vehicle it will have an impact also on the increase in industry or services engaged in the automotive like painting workshop. Lead affects the haematological system, nervous, urinary, reproductive, endocrine, and heart.

The aim of research to analyze the influence of the air lead to blood lead and blood lead effect on hemoglobin, serum cystatin C and health complaints.

The research methode is observational (cross-sectional), type of quantitative research. The population study group and a comparison with a sample of 12 of each group. Analysis of data using multiple linear regression and logistic regression (p-value 0.05). Air lead levels were measured using Gas Chromatography flame AAS method (NIOSH method 7082-2003), blood lead measured using AAS method, blood hemoglobin was measured using Cyamethemoglobin and Cystatin C in serum using ELISA method.

The results showed that there was an effect of air Lead levels with blood Lead levels ( $\beta=0,667;p=0,000$ ). that there was an effect of blood Lead levels with blood hemoglobin, with the direction of a negative relationship, the higher the blood Lead will make a low Hemoglobin ( $\beta=-0,609;p=0,008$ ). that there was an effect of blood Lead levels with serum cystatin C, with the direction of a positive relationship, the higher the blood Lead will make high serum cystatin C ( $\beta=0,348;p=0,035$ ). that there is no effect on levels of blood Lead with indigestion ( $\beta=0,004;p=0,990$ ). that there was an effect of blood Lead levels with renal impairment ( $\beta=0,572;p=0,038$ ). that there was an effect of blood Lead levels with haematological disorders ( $\beta=0,816;p=0,020$ ). and that there is no influence of Lead blood levels with CNS disorders ( $\beta=-0,022;p=0,944$ ).

The conclusions this study is, blood lead is affected by lead in the air, Hemoglobin and Cystatin C is influenced by blood lead and hematological disorders and kidney disorders are affected by blood lead. To minimize the health problems caused by exposure to lead in the air to workers monitor workers' health should be done once every 6 months and workers are expected to use special gas masks while working.

**Key words:** Lead in the air; lead in blood; Hemoglobin; serum Cystatin C; Health complaints