

# **PAPARAN PLUMBUM (Pb) PADA PEKERJA BENGKEL SEPEDA MOTOR DAN DAMPAKNYA TERHADAP KADAR Pb DARAH, Hb DARAH DAN TEKanan DARAH**

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## **BLOOD HB**

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The entrance of lead into human bodies may have such impacts as those on hemopoietic and cardiovascular systems. Lead may shorten erythrocyte life and impair hemoglobin synthesis. In a long run, a low level of lead exposure (< 40 µg/dl) has an effect on adult cardiovascular system.

The purpose of the present research was to analyze lead exposure to mechanics and its impacts on blood level of lead, blood level of hemoglobin, and blood pressure.

The present research was of analytic observational study. Field sampling was conducted in a cross-sectional manner. Study group was motorcycle mechanics all along Gedangan Street, Sidoarjo, whereas control group was employees of Metron Electronic Shop and Sub-District Office of Gedangan, Sidoarjo. A randomly-selected sample of 38 individuals consisted of 19 mechanics and 19 employees of Metron Electronic Shop and Sub-District Office of Gedangan. Pb level of indoor air was sampled in five motorcycle garage, Metron Electronic Shop and Sub-District Office of Gedangan. Variables were lead exposure in relation to blood lead level, blood level of hemoglobin, and blood pressure. Blood level of lead was measured by means of AAS (Atomic Absorption Spectrophotometer) method. Data was analyzed by such statistical analyses as *t*-test, Mann Whitney, Fisher's exact, chi-square, Pearson correlation, and multiple linear regression test.

The result showed that Pb level of indoor air motorcycle garage, Metron Electronic Store and Sub-District Office of Gedangan was under the Treshold Limit Value of SNI 19-0232-2005 and the Limit value of Manpower Minister No. SE-01/MEN/1997. Laboratory examination of 5 oil samples indicated that blood lead level of used oil was under the standard established by the SOAP (Spectrometry Oil Analysis Program). Analysis of blood lead level indicated a difference in average blood lead level of study group and control group ( $p=0.044$ ) with the study group having a blood lead level higher than that of the control group.

It could be concluded that exposure lead of used oil had an effect on an increased blood lead level ( $p=0.020$ ). Effect of blood lead level positively correlated to blood level of hemoglobin ( $p=0.000$ ) with  $r = 0.547$ , whereas effect of blood lead level was not significant correlated to systolic ( $p=0.903$ ) and diastolic ( $p=0.469$ ) blood pressures.

It was recommended that the employers or management of the motorcycle garage to take such technical controlling measures as adding local exhaust ventilations, providing adequate hygienic facilities, supplying Personal Protection Equipment (PPE) and supervising use of PPE, implementing job rotation, and conducting biological monitoring biannually.

*Keywords: Lead Exposure, Motorcycle Garage Mechanics, Blood Pb, Blood Hb, Blood Pressure*

