

UNIVERSITI TEKNOLOGI MARA

**A STUDY ON PERSONAL HYGIENE AND
BLOOD LEAD LEVEL AMONG LEAD BATTERY
MANUFACTURING WORKERS**

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**Project paper submitted in partial fulfilment of the
requirements for the degree of Bachelor in Environmental
Health and Safety (Hons.)**

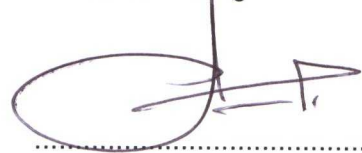
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Declaration by Student

Project entitled "A Study on Personal Hygiene and Blood Lead Level among Lead Battery Manufacturing Workers" is a presentation of my original research work. Wherever contribution of others are involved, every effort is made to indicate this clearly, with due references to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Miss Farah Ayuni Bt Shafie as Project Supervisor and Tn.Haji Pozi B Mohd Tahir as Co-supervisor. It has been submitted to the Faculty of Health Science in partial fulfilment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons)

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Abstract

A Study on Personal Hygiene and Blood Lead Level among Lead Battery Manufacturing Worker

MUHD KHAIRUL ANUAR BIN UNIG KUTTI

Introduction: Lead is a very old and versatile metal with a wide range of important applications. Unfortunately, it is also a toxic metal which, if absorbed into the body in large amounts either through a single high exposure incident or via long-term chronic exposure to lower amounts, can result in adverse health effects. Consequently, legislation has been developed over many years, and continues to be developed, with the objective to limiting the quantities of lead to which the general population and for those working with lead can be exposed. There are several factor that can cause lead being accumulated in the body for example when lead and lead containing items are process, worker or recovered, from scrap or waste they can create lead dust, fume or vapors. The body will absorb lead when breath in lead dusts, fume or vapors. Lead can be accumulated in body also through ingestion process such as swallow any lead, example eat, drink, smoke, or biting nails without wash hand and face. **Methodology:** The study was conducted in a lead battery manufacturing plant, located in Semenyih Selangor Darul Ehsan. This study covered all sections in the lead battery manufacturing plant process. The study design was a retrospective study. The data is collected through biological monitoring which is from blood sampling and questionnaire. In this study 64 structured questionnaire were distributed to two groups of respondents. This questionnaire was used to obtained several information regarding personal background data of the respondents such as age, duration of employment, department of working, smoking period and nationality. The second section in this questionnaire was on personal hygiene criteria which include the frequency of alcohol consumption, eating habits at workplace, personal hygiene at work place, and the frequency of personal protective equipment (PPE) usage. All questionnaires were written in Malay, English and Nepal and bilingual translator assisted in the interviews. **Results:** This study found that there is a correlation between personal hygiene and blood lead level with the significant value of [p-value<0.05]. The frequency of PPE used for two groups is significant with χ^2 value of 8.880 and 7,549. There is also an association for frequency of alcohol for less than 5 years group with $\chi^2 = 12.789$. Besides that, it was also found that association with washing work uniform for both 2 group is $\chi^2 = 12.789$ and 7.226. In addition, an association between showering after work which the $\chi^2 = 17.317$ and 23.172, as well as an association for eating and drinking at work place, which both group have association $\chi^2 = 8.880$, The association between hand washing after work is $\chi^2 = 11.823$ and 13.714 and the last association is for hand washing before smoke the χ^2 both group is 12.389 and 16.327. **Conclusion:** It is important to improve level of personal hygiene and safety behaviour that will help to reduce the chances of exposure to lead. Proper exposure reduction must be conducted at lead battery manufacturing plant including the engineering control. Beside depending on personal protective equipment, the usage of new technology such as use of local exhausts ventilation which helps to reduce the risk of exposure to lead among lead battery manufacturing worker. All in all, there is an association between personal hygiene and blood lead level.