

## PD1: Benzene Exposure and Pulmonary Function Status among Foggers at Dewan Bandaraya Kuala Lumpur

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### ABSTRACT

**Introduction:** Thermal fogging is one of the methods to control the spread of dengue fever. Chemicals used in the thermal fog machine consist of diesel and petrol, which both contain volatile organic compounds including benzene. **Method:** The aims of this study were to determine the personal benzene concentration and to conduct the lung function test among foggers at Dewan Bandaraya Kuala Lumpur. Personal benzene concentration was measured using a personal air sampler and analyzed following the NIOSH Manual of Analytical Methods (NMAM) 1501. Measurement of personal benzene concentration involved two fogger activities namely during the preparation of chemical and when fogging was executed. Lung function of the 35 foggers (exposed group) and 35 non-foggers (control group) was tested using a spirometer. The respondents were also required to answer a questionnaire. **Results:** The results showed that the average personal benzene concentration was 1.3 ppm during the chemical preparation and below the detection limit (< DL) when fogging was carried out. Personal benzene concentration measured during the preparation of chemical was found to exceed the limit set by the NIOSH (US). For the lung function test, the percentage of foggers having restrictive lung problems was lower than the control group. However, statistical tests showed no significant difference ( $p > 0.05$ ) between these two groups. This study also found that smoking status showed a significant difference ( $p < 0.05$ ) in foggers. **Conclusion:** In conclusion, exposure to individual benzene concentration was found to be higher during the chemical preparation activities. Abnormalities in lung function among the foggers cannot be associated directly with exposure to benzene, but there was another contributing factor, namely smoking habits. However, risk control measures such as substitution of other chemicals containing benzene and the use of personal protective equipment (PPE) must be completely practiced by the foggers.

### KEY WORDS:

*Benzene, Lung Function Test, Diesel, Petrol, Foggers*

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## PD2: Evaluation of Bacterial Contamination in Beverages Sold by Street Vendors around Chow Kit area

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### ABSTRACT

**Introduction:** Consumption of roadside foods and beverages potentially increases the risk of foodborne diseases due to improper handling and poor hygienic practice among the street vendors. This study was carried out to determine the level of bacterial contamination in three types of beverages (cordial-based drinks, milk-based drinks, fruit juices) sold by street vendors around the Chow Kit area. **Method:** A total of 31 samples of beverages were analyzed to determine the total viable count, total coliform, *Escherichia coli*, *Staphylococcus aureus* and presence of *Salmonella* spp. by using the standard plate count method. **Results:** Milk-based drinks were found to had the highest mean of total viable count at  $5.30 \pm 1.11$  Log CFU/ml. About 71% of the samples were positive with total coliform with the highest mean of  $4.75 \pm 0.79$  Log CFU/ml in fruit juices. *Staphylococcus aureus* was detected in 58% of samples. The highest mean of *Staphylococcus aureus* found was  $3.42 \pm 1.15$  Log CFU/mL, also in fruit juices. Only one sample of milk-based drinks was found to be positive with *E. coli*. There were 19% of the samples that were positive with *Salmonella* spp. There was no detection of *Salmonella* spp. in the milk-based drinks. **Conclusion:** The safety level of beverages sold around Chow Kit area was average. Actions for improvement could be implemented to ensure the safety and maximize the quality of beverages sold by the streets.

### KEY WORDS:

*Beverages, street vendors, bacterial contamination*