

## **Occupational Formaldehyde Exposure and the Health Symptoms Among Histopathology Laboratory Workers in North Borneo**

### **ABSTRACT**

In hospitals, the chemical formaldehyde is commonly utilised to preserve tissues. The healthcare personnel exposed to formaldehyde the most work in histopathology laboratories. This study aims to determine the health effects of everyday formaldehyde exposure on healthcare professionals in the histopathology laboratory. Cross-sectional comparative research was used for the study design. The 8-hour time-weighted-average (TWA8) formaldehyde level was measured at the histopathology laboratory at Hospital Queen Elizabeth in Sabah and the administration office (control) using the real-time colorimetric tube method. Workers in both places were required to answer a questionnaire on their health status. The TWA8 formaldehyde level was higher in the exposed area (0.113 ppm) than in the unexposed area (0.031 ppm). Air samplings showed that formaldehyde exposure levels in the exposed area ( $0.108 \pm 0.026$  ppm) were significantly higher than in an unexposed area ( $0.028 \pm 0.018$  ppm) at  $p < 0.001$ . Symptoms closely related to formaldehyde exposure were 51% in the histopathology laboratory workers, greater than 35% in the control group ( $p < 0.05$ ). The workers showed six symptoms: irritated eyes, sore throat, cough, runny nose, sneezing and headache. Although the level of occupational workplace exposure to formaldehyde in the histopathology laboratory was below the recommended limit, the health symptoms related to formaldehyde among the exposed group were detected. Enhancing control measures for indoor air quality improvement in the working area is required to minimise the health risk among laboratory workers.