

of Buyat Village was about 0.01-0.104 mg/L (average 0.056 mg/L). A significance was observed between in drinking water and blood arsenic levels with $p=0.000$ (Odd Ratio = 19.44 95% CI: 6.52-58.00), blood arsenic levels and skin lesions with $p=0.000$ (Odd Ratio = 15.63, 95% CI: 4.94-49.40). Our study provides insight into potentially modifiable host characteristics and identifies factors that may effectively target susceptible population subgroups for appropriate interventions.

OT24-6

Development of Wet & Bulb Globe Temperature (WBGT) Index Formula and Determination of Heat Strain Indicator for Worker Exposed by Heat Stress **Denny Denny Ardianto**

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The objectives of the research were to determine heat strain indicator other than core temperature and to discover mathematical formula which could develop new indicator of WBGT Index and threshold limit value being appropriate for workers in Indonesia. The research was conducted in glass, steel, and home industries whose sample size were 122 workers. Workers who experienced heat strain were 26 persons (21.3%). Analysis showed that beside core temperature, pulse could be used as an indicator of heat strain. Its critical point was 7 pulses/minute if baseline pulse was known, and critical point was 105 pulses/minute. Based on confirmatory analysis, mathematical formula for WBGT index was got. The formula was $(0.32 \times \text{wet temperature}) + (0.37 \times \text{dry temperature}) + (0.31 \times \text{globe temperature})$. Based on regression analysis was derived threshold limit value of developed WBGT index was 37.1°C. However, the value of former WBGT index was 33.3°C. If wind velocity was

OT24-7

Arsenic Levels Exposure as Risk Factors to Skin Lesions at Peoples in North Sulawesi, Indonesia **Daud Anwar¹, Nur Nasry Noor¹, H.J Mukono², Muh. Dali Amiruddin¹, Veni Hadju¹**

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Arsenic exposure can generate various skin lesions such as keratosis, hyperkeratosis, hyperpigmentation, hypopigmentation, and skin cancer. This study was intended to examine risk factors of rice, drinking water, urinary, and blood arsenic levels to skin lesions at peoples in North Sulawesi. This was a case control study whereas cases ($n=54$) were people suffering for skin lesion (keratosis or hyperkeratosis) living in Buyat Village (exposure areas) and controls ($n=54$) were normal people who were living in Buku Village (non exposure areas). Inclusion criteria was age more than 10 years and living at the areas more than 7 years. Arsenic levels was analyzed using AAS-GF while skin lesion diagnosed by a dermatologist. Data analysis was

performed using logistic regression. There was significant difference before groups for age, sex, education and occupation $p>0.05$. In the others, there were significant differences between case and control groups for arsenic levels in rice (0.61 ± 0.27 vs. 0.34 ± 0.12 mg/l, $p=0.00$), drinking water (0.04 ± 0.03 vs. 0.01 ± 0.01 mg/l, $p=0.00$), urine (0.13 ± 0.15 vs. 0.00 ± 0.01 mg/l, $p=0.00$) and blood (0.99 ± 0.08 vs. 0.02 ± 0.03 mg/l, $p=0.00$). Analyses with logistic regression showed that arsenic levels in rice, drinking water, urine and blood associated with skin lesions, respectively $OR=4.14$, (95%CI., 1.18-14.51), $OR=36.79$ (95% CI., 10.44-129.66), $OR=5.94$ (95%CI., 1.6-21.53), and $OR=10.53$ (95%CI., 2.66-41.75). We conclude that arsenic levels in rice, drinking water, urinary and blood were risk factors to skin lesions.

Oral Track 25- Occupational & Environmental Health

OT25-1

Associated Sociodemographic and Employment Characteristics with Return to Work Following Injury

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Background: Return to work following injury is an important end result of treatment and rehabilitation among workers who are injured. Apart from the nature of injury, other factors such as employment characteristics, social and demographic factors were found to affect return to work.

Aim: To determine the prevalence and factors associated with return to work among patients following long bone fractures of the lower limbs

Method: A cohort of patients who sustained long bone fracture of the lower limbs during the period of 24 months – 1st August 2004 to 31st July 2006 was identified from a teaching hospital in Kuala Lumpur. Subjects were identified through medical record registry and eligible patients were then contacted by phone. Subjects were followed up at 3, 6, 9 and 12 months post injury and stopped if a patient had returned to work or if 12 months had past since the onset of injury. Results: One hundred eighty five (185) subjects were recruited. Of these 166 (89%) had returned to work within one year. Return to work period was found to be significantly associated with gender, type of occupation and presence of compensation.

Conclusion: Return to work is associated with factors other than the injury itself, such as compensation issues, occupation type and gender. Looking at these factors may improve communication between caregiver, employer and patients to encourage safe earlier return to work for the benefit of all.