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Conclusion: The presence and levels of these compounds suggest a need for salon- and worker-level interventions to reduce workplace exposures as well as epidemiologic studies to understand health impacts.

PP-30-197**Accidents Associated With Education or Research Among University Students**

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Background/Aims: The purpose of this study is to assess the accidents due to education or research activities among university students, and thus provide information to the related agencies to set policies of prevention and management.

Methods: We conducted a questionnaire survey on a stratified random sample of students of all universities in Taiwan, which was obtained through dividing the colleges into 6 categories. All participants were asked to recall the accidents occurred during participating in class or research activities in the 1-year period before the survey. After being filled out, the questionnaires were read by a reading machine and analyzed by using SAS and SUDAAN statistical software.

Results: The weighted response rate of the questionnaires survey is 66.2%. The results showed that 3.55% (standard error = 0.18%) of the students had accidents in the past year. Accidents were not associated with sex or grade, but were associated with the category of college.

Conclusion: The results showed that accidents were prevalent in universities in Taiwan. Mechanical injuries should be of the highest priority in prevention and management.

PP-30-198**Validating Historical Beryllium Exposure Estimates at a Beryllium Manufacturing Facility**

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Background/Aims: Beryllium exposure may lead to sensitization and chronic beryllium disease. Exposure-response relationships have been inconsistent, which may, in part, be because of lack of accurate and precise estimates of historical exposures. The purpose of this work was to create individual exposure estimates using work histories and a job-exposure matrix for a cohort of workers hired after 1 January 1994 at a beryllium production facility and surveyed for beryllium sensitization and chronic beryllium disease in 1999.

Methods: Baseline exposure estimates (BEE) for the job-exposure matrix were generated using personal cassette samples (n = 4026) collected for all jobs during a sampling campaign in 1999. Historical exposure estimates (HEE) were generated for all job and year combinations by applying fractional annual change in area-sample exposure (1994–1998) to the 1999 BEEs. Reliability of the BEEs and HEEs was evaluated by comparing with a validation dataset of independently collected personal cassette samples between 1999 (n = 147) and 1994–1998 (n = 285), respectively. Precision, bias, and total agreement of BEEs and HEEs were assessed using correlations, Bland-Altman plots, and concordance correlation coefficients (CCC), respectively. Fractional annual change was compared with information on process changes and engineering controls instituted between 1994 and 1999, which were obtained from detailed monthly reports and interviews with facility engineers.

Results: BEEs and HEEs underestimated measured exposures in their respective validation datasets by 4% and 25%, respectively. The CCC, which reflects deviation of the fitted line from the concordance line,

showed much better agreement for both BEEs (CCC = 0.79, accuracy = 0.98, precision = 0.80) and HEEs (CCC = 0.65, accuracy = 0.99, precision = 0.67). Percent bias did not change with exposure levels, process areas, or year. The fractional annual change in exposure was consistent with process changes, such as implementation of enclosures and engineering controls reported in monthly reports for most process-areas.

Conclusion: The method used for historical reconstruction of exposures was reasonably reliable and can be used in epidemiologic studies to evaluate quantitative exposure-response relationships.

PP-30-199**Visual Function Abnormality Among Light-on Test Workers in TFT-LCD Industries: A 3-year Longitudinal Study**

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Background/Aims: To ensure the display of quality of liquid crystal display (LCD) panels, the light-on test workers should look at screens and are exposed to flickering in clean rooms for long working hours. The aim of this study was to evaluate the visual influence among the light-on test operators.

Methods: In 2005, we conducted a cross-sectional study to collect the results of annual ophthalmic survey of light-on test workers of a thin film transistor LCD company in southern Taiwan. In addition, all the participants fulfill a questionnaire about ophthalmic symptoms. The questionnaire included demographic data, previous eye disease, and self-reported ophthalmic symptoms. The 51 light-on test workers who received the same examination in 2001 and 2004 were recruited as longitudinal study population. We calculated the prevalence of eye discomfort syndrome and compared the abnormality rate of ophthalmic test between 2001 and 2004.

Results: The overall prevalence of eye discomfort was 66.1% among the light-on test workers. The major self-reported eye discomfort symptoms were eye dryness, eye itching, and red eyes. The prevalence of blurred vision at near distance, double vision, and increase discharge were significantly higher in LCD light-on test stations than in LCM light-on test stations. Ophthalmic test showed there were 174 workers (16.9%) had tear secretion dysfunction and 13.6% of subjects had visual discrimination dysfunction. The visual discrimination dysfunction was significantly higher in LCM Light-on test stations than in LCD light-on test stations. In addition, contact lens use was a potential predictor for chronic conjunctivitis. The results of 3-year longitudinal study showed the employment duration, and wearing contact lens during work; work stations did not relate to the abnormality of visual function among 51 light-on test workers.

Conclusion: The 3-year follow up results showed no influence on the visual function, and further follow-up to evaluate the long-term health effects of the light-on test is necessary.

PP-30-200**The Glomerular Filtration Rate and Metabolic Syndrome Among High-tech Workers in Southern Taiwan**

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