discriminant analysis, the sensitivity was 88.0%, specificity was 67.9%, accuracy was 80.8%, and ROC-AUC was 0.91 (95% CI: 0.85 to 0.97) in the training set. In the validation set, the sensitivity was 66.7%, specificity was 71.4%, accuracy was 70.0%, and ROC-AUC was 0.86 (95% CI: 0.69 to 1.00).

Discussion
Breath test may have potential in screening for pneumoconiosis. A multi-centre study is warranted to establish a reliable model and the procedures must be standardised to prevent confounding factors before clinical application.

Abstracts

**802 SPIROMETRY LONGITUDINAL DATA ANALYSIS SOFTWARE (SPIROLA) FOR RESPIRATORY DISEASE PREVENTION AMONG SHIPYARD WELDERS IN SOUTH KOREA**

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Introduction
Workplace health monitoring using periodic spirometry has been recommended as a tool for prevention of respiratory disease. The Spirometry Longitudinal Data Analysis (SPIROLA) software is an integrated visual and quantitative tool to aid in monitoring lung function in individuals participating in spirometry-based health monitoring programs developed by Centres for Disease Control and Prevention (CDC).

Methods
We analysed the annual lung function decline in 385 male workers of the Korean Shipyard Welder Cohorts by SPIROLA. To evaluate the annual decline of spirometry data, we analysed the longitudinal spirometry data collected from 2010 through the year 2015 in workers who had at least four follow-up tests. We estimated each person’s rate of FEV1 and FVC decline and group’s rate of FEV1 and FVC decline.

Result
The results on 385 workers with 4 or more years of follow-up tests showed that the mean rate of FEV1 decline was higher than that for the Korean population. And decline of lung function in welders suggest a greater effect in smoking status.

Discussion
This study indicates the need for respiratory disease prevention and intervention in this shipyard welders. The computerised annual lung function decline program is very useful of workers’ respiratory health prevention. So We need to develop a program suitable for workplace environment in Korean.

**890 WORK-RELATED ASTHMA AMONGST ASTHMATIC PATIENTS IN THE EASY ASTHMA CLINICS IN KHON KAEN, THAILAND**

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Introduction
Work-related asthma (WRA) amongst asthmatic patients in worldwide country are about 15%–25%. In Thailand, there are at least 3 million asthmatics patients but there have never been a figure of WRA presented. This is the first study in Thailand where a proportion of WRA amongst asthmatic patients was figured.

Methods
A descriptive study was performed. The samples of 523 asthmatic patients in the Easy Asthma Clinics were
occupational exposure in agricultural workers - impact on asthma and chronic obstructive pulmonary disease development


Aim of the study Determination of the occupational exposure influence on asthma and COPD development among crop and dairy farmers, and evaluation of exposure characteristics by job exposure matrices.

Methods A cross-sectional study was performed, including 87 crop farmers and 83 dairy farmers, exposed to respiratory hazards, compared to a control group of 80 office workers. Standard questionnaire on chronic respiratory symptoms and spirometry testing were applied, while farmers were also assessed by job exposure matrices.

Results and discussion Asthma was registered in 8% of crop and 7.2% of dairy farmers, and was significantly associated with atopy, and positive family history of asthma and COPD, while association with smoking habit and duration of exposure was non-significant. The prevalence of allergic was significantly higher compared to non-allergic asthma in exposed and unexposed workers. Occupational allergic asthma was registered in 2.3% of crop and 1.2% of dairy farmers, while the frequency of work-aggravated asthma was 5.7% and 6.1% respectively. COPD prevalence was non-significantly higher in exposed (6.9% in crop and 8.4% in dairy farmers) compared to office controls (3.8%). COPD was significantly associated with age over 40 years, smoking habit, and duration of exposure in exposed subjects. According to data obtained by job exposure matrices, asthma and COPD in crop farmers were significantly related to high intensity of exposure to dust, gases, fumes and vapours on a regular basis, while among dairy farmers they were significantly related to high intensity of dust exposure on a regular basis, as well as high intensity of exposure to gases, fumes and vapours both on sporadic and regular basis.

Conclusion These results demonstrated differences between the smokers and non-smokers groups in regard to spirometric and radiographic alterations. The ex-smokers group had improved results compared to the smokers group in regard to altered spirometric and chest x-rays findings. These data may contribute with strategies to enhance smoking cessation programs within the bauxite mining industry in order to prevent pulmonary changes in mining workers.