Pneumoconiosis Compensation Fund Board (PCFB) research grant: Final Report 2014

Study title: Development of a pneumoconiosis Job Exposure Matrix for Hong Kong workers exposed to silica and/ or asbestos dust

Principal investigator (PI):

Prof LAO Xiangqian, Assistant Professor, School of Public Health and Primary Care, The Chinese University of Hong Kong

Co-investigators (Co-I):

Prof YU Chung Toi Samuel, Associate Director, Adjunct Associate Professor; Health, Safety and Environment Office, The Hong Kong University of Science and Technology

Prof TSE Lap Ah, Assistant Professor, School of Public Health and Primary Care, The Chinese University of Hong Kong

Prof WANG Feng, Research Assistant Professor, School of Public Health and Primary Care, The Chinese University of Hong Kong

Dr. LIN Sihao, Post-doctoral Fellow, School of Public Health and Primary Care, The Chinese University of Hong Kong

Abstract

Objective

The aim of this study is to develop a pneumoconiosis Job Exposure Matrix (JEM) that uses coded occupation titles to generate semi-quantitative estimates of exposure of workers who are exposed to silica and/or asbestos dust in Hong Kong.

Materials / methods and Results

Expert reviews and focus-group discussions have been used to generate a comprehensive list of the occupations in Hong Kong characterized by work environments that are likely to expose workers to silica and/or asbestos dust from the International Standard Classification of Occupation-1968 (ISCO-68). Two local industrial hygienists with CIH qualification have reviewed the collected exposure information and assessed the dust exposure based on their knowledge and experience for the identified occupations. The occupation and dust exposure have been coded separately and merged to form the pneumoconiosis JEM. A validation study has been conducted to validate the JEM.

Conclusion

This is the first JEM in Hong Kong providing semi-quantitative assessments of exposure of workers who are exposed to silica and/or asbestos dust. The JEM includes more than 1500 occupations. Validation study shows a high correlation between exposure estimates by hygienists and the concentration of the dust examples (Kappa=0.5825, p=0.5078). The JEM will allow users to quickly identify the workers who have been exposed to silica and/or asbestos dust and estimate their exposure level. This cost-effective exposure assessment tool will facilitate epidemiological research on occupational health in Hong Kong.