

## THE COAL WORKERS' PNEUMOCONIOSIS (CWP) SELECT COMMITTEE OF THE QUEENSLAND PARLIAMENT

### Call for submissions - extended terms of reference - inquiry into occupational respirable dust issues

#### General Comments on occupational illness and injury.

Occupational illness (like several occupational cancers especially skin, lung, liver, and illness e.g. asbestosis, chronic solvent encephalopathy) as distinct from injury, have long latency periods where the condition is developing but asymptomatic, multiple exposures and interactions (e.g. occupational, environmental, recreational, and behavioural) are common factors.

These factors are what make identification of occupational illness from injury difficult, and why occupational injury is grossly underreported to regulators and compensation insurers. Recognition of occupational illness requires suspicion, awareness and knowledge.

#### General Comments on health screening and surveillance for occupational illness.

##### **Recommended Reading and Suggested reference material:**

Keith T Palmer, Ian Brown, and John Hobson (Eds), "Fitness for Work The Medical Aspects", Fifth Edition, Oxford Medical, Chapter 29: Health screening, Ching Aw and David S. Q. Koh

The following characteristics of diseases and tests appropriate for screening made by the authors of the above chapter are considered very relevant and evidence based. The disease should be clinically important (prevalent with significant mortality and/or morbidity), have a recognisable latent or asymptomatic stage, and amenable to treatment. The screening tests should be acceptable, safe, sensitive, specific, easily done and relatively cheap.

Comments regarding the health surveillance of workers exposed to respirable crystalline silica (RCS) (a more hazardous respiratory irritant than carbon particulates, often associated with coal dust in the mining industry) resulting in silicosis, progressive massive fibrosis, and an IARC Group 1 carcinogen, are considered relevant. The UK Health and Safety Laboratory's 2010 report "Health Surveillance in Silica Exposed Workers" contained the following comments regarding Chest Radiology:

- No consensus view was identified from the reviewed literature as to the exact role of chest radiology in health surveillance programmes for RCS-exposed workers.
- A full sized PA chest radiograph should be used, reported according to ILO classification.
- CT scanning has no current practical role in health surveillance, although its role is of a research interest.
- Specialists reporting such radiology should be able to demonstrate specific competence to do this (e.g. NIOSH B reader programme).
- Abnormal chest radiograph needs a definition within a health surveillance programme (e.g. ILO 1/0, PMF, or large opacities A, B or C).

## MAIN FINDINGS

“Whilst much data and research relating to the general adverse respiratory (and other) health effects of exposure to RCS exist, there are relatively few sources of evidence relating specifically to health surveillance for RCS-exposed workers.

General consensus exists, within the nine identified documents specifically dealing with health surveillance for RCS-exposed workers, that this process is important for identifying early adverse respiratory effects.

Health surveillance programmes should take into account regular and up-to-date measures or estimates of individual worker exposure to RCS. General consensus also exists to support a baseline assessment of respiratory health for potentially RCS-exposed workers, with a subsequent annual assessment. Both of these should include use of a ‘standardised’ questionnaire and lung function measures, although an agreed standard questionnaire or data recording proforma is currently not available.

Whilst existing recommendations include regular (annual) lung function testing for potentially exposed workers, no agreed consensus exists to guide how best to interpret lung function changes over time, specifically in the context of identifying early silicosis, accelerated FEV1 (Forced Expiratory Volume in one second) decline or COPD. Generic software supplied by NIOSH (Spirola) can assist with this requirement, but is not specific to harm caused by RCS.

No agreed consensus exists relating to the periodicity of chest radiographs required to identify changes of silicosis, although various approaches are suggested.”

(Ref: Lisa Bradshaw, Jo Bowen, David Fishwick, Shuna Powell, “Health surveillance in silica exposed Workers” Report Prepared by the Health and Safety Laboratory, Harpur Hill, Buxton, Derbyshire, SK17 9JN, for the Health and Safety Executive 2010)

### **International Labour Office (ILO) International Classification of Radiographs of Pneumoconioses**

In 1980, the ILO International Classification of Radiographs of Pneumoconioses created standard radiographs to assist with accurate diagnoses of pneumoconiosis and other interstitial lung diseases. The ILO system uses a step-by-step method to describe lesions seen on a chest radiograph, taking the shape, size, location, and number of opacities into account, and using standard radiographs for comparison. Despite high resolution CT scanning now being a preferred and more sensitive method for such assessment, no ILO guidance is based on this imaging technique as yet.

The chest radiograph is a relatively insensitive and non-specific tool for diagnosing silicosis (*and even less reliable for CWP*), as a normal examination does not exclude the presence of silicosis or pulmonary fibrosis. Their use continues largely as a function of their simplicity, relative inexpense, rapid access and low radiation dose, making them the first choice in health surveillance and screening. (Ref: Garg K, Lynch DA. “Imaging of thoracic occupational and environmental malignancies” J Thorac Imaging. Jul 2002;17(3):198-210 and Franzblau A, Kazerooni EA, Sen A, Goodsitt MM, Lee SY, Rosenman KD, et al. “Comparison of digital radiographs with film radiographs for the classification of pneumoconiosis” Acad Radiol. Jun 2009;16(6):669-77

## **General Comments on Coal Mine Workers' Health Scheme**

Many medical practitioners with limited occupation medicine awareness and training concentrate on the fitness for work aspects of the medical rather than the identification of hazardous exposures such as carbon particulates. As a result of this it is likely that the identification of other hazardous exposures (e.g. noise) have also been missed.

Chest x-rays appear to have been ordered through a recipe book process rather than individual personal risk assessment. This could have resulted from inadequate information about the level of exposure or the lack of health surveillance training and/or awareness. It has almost certainly led to unnecessary irradiation of coal mine workers and exposure to a known carcinogen (IARC Group 1).

### **The Monash Review**

This focussed on one consequence of a failed system (Failure to detect several cases of pneumoconiosis) and not all causes of the failure.

The problem is failure of the Health Surveillance system and processes and NOT the failure to identify Coal Workers Pneumoconiosis. This was one well publicised consequence resulting from several failures in the system NOT solely due to unqualified medical practitioners.

A significant systemic failure was in management of the medical records. For health surveillance to remain effective, access to previously collected medical data and clinical measurement is paramount.

The system requires change of which the training and registration of health practitioners is only one issue.

There must be a comprehensive data base allowing access of previous medical records at the time of medical review and assessment.

The data should be accurate and comprehensive

- It should contain information relating to all hazardous exposures (hazard, nature of hazard, dose, and duration of exposure). This information should ideally be:
  - Quantitative
  - Individualised (if impractical the assessing medical practitioner should have first hand knowledge of the risk.
  - Provided by the employer (or knowledgeable representative)

**THE EXTENDED TERMS OF REFERENCE REQUIRE THE COMMITTEE TO INVESTIGATE AND REPORT ON:**

**a) occupational respirable dust exposure for:**

- (i) coal port workers**
- (ii) coal rail workers**
- (iii) coal-fired power station workers**
- (iv) other workers**

*Occupational respirable dust is not confined to carbon particulates, the commonest source for many adult workers is tobacco smoke or motor vehicle exhaust.*

**(b) the legislative and other regulatory arrangements of government and industry which have existed in Queensland to prevent or reduce the harm caused by occupational respirable dust exposure to port, rail, power station, and other workers**

*To my knowledge requirements by regulations exist for health surveillance of workers exposed to a number of scheduled hazardous substances, if risk assessment determines that significant exposure exists.*

**(c) whether these arrangements were adequate, and have been adequately and effectively maintained over time**

*No amount of regulation can be effective if it is ignored and / or not policed.*

*The recent identification of possible cases of coal mine workers pneumoconiosis supports the hypothesis that there has been a failure (or more likely many failures) in the systems implemented to control the exposure to respirable dust and to identify those exposed workers.*

*It is reasonable to assume that the system has also failed to identify adverse health effects from other hazardous exposures.*

**(d) the roles of government departments and agencies, industry, health professionals and unions in these arrangements**

*Health professionals can only play a useful part in the process if they are appropriately trained and provided with all of the relevant information including exposure data.*

*The majority of undergraduate medical students in Australasia receive little in the way of formal education in occupational medicine, which is considered by many institutions as a post graduate specialty. (Ref: Shanahan EM, Murray AM, Lillington T, Farmer EA. "The teaching of occupational and environmental medicine to medical students in Australia and New Zealand". *Occup Med (Lond)*. 2000 May;50(4):246-50.)*

- (e) the efficacy and efficiency of adopting methodologies and processes for respirable dust measurement and mitigation, including monitoring regimes, engineering measures, personal protective equipment, statutory requirements, and industry policies and practices, including practices in jurisdictions with similar industries**

*The management of the health risks associated with these workplace exposures is basic occupational health and safety practice but cannot be effective if it is inadequately resourced and not supported by industry, workers and regulators.*

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