

HEALTH SURVEILLANCE IN THE MINING INDUSTRY THE WESTERN AUSTRALIAN EXPERIENCE

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ABSTRACT

Historically, in Western Australia there was a requirement for regular chest x-rays to be done on underground gold miners. With recent new legislation (introduced in 1994) there was an opportunity to review the justification for continuing with these x-ray requirements, and also to discuss other possible health surveillance options.

Currently, under the new legislation for the mining industry a more comprehensive health surveillance process has been regulated for, following agreement between the Department, the industry, and employee representative bodies.

This paper will present a short historical perspective on how agreement was reached regarding health surveillance content, and also discusses the mechanisms utilised for the development and implementation of the health surveillance program.

Results to date will also be presented on the respiratory questionnaire, lung function, chest x-ray and audiogram findings, and will be correlated with job, duration of employment and in the longer term atmospheric contaminant exposure levels.

In the context of this paper and the health surveillance program in Western Australia, 'health surveillance' could be stated to be the continued watchfulness over the distribution and trends of disease incidence through the systematic collection, consolidation and evaluation of relevant data. This implies the active analysis of data obtained from the collection of health information ultimately health surveillance requires interpretation, and intervention for the purposes of prevention. (Conversely health screening is the administration of tests to individuals to detect disease at a point when intervention could be beneficial).

INTRODUCTION

A health surveillance program for mine employees was introduced through legislation for all employees in the mining industry in Western Australia in 1995. It was identified that the earlier "Mine Health Certificate", which had been required through regulation since 1947, was now inappropriate and not being utilised for the benefit of workers, the mining industry or the community of Western Australia.

Accordingly the requirement for a "Mine Health Certificate" was dropped in favour of "Health Assessment" as part of a more comprehensive and focussed Health Surveillance Program for all mine employee's (exploration and drilling had not been covered by the earlier regulations).

HISTORY:

Discussion with industry and employee representative bodies resulted in the introduction of a new and more effective health system in 1995 for mine employees, to replace the anachronistic system repealed in 1993.

Under the old legislative provisions, two yearly chest x-rays were required in underground gold mines along with information on the job and minesite worked, for each employee. Other classes of mine had differing requirements, but the 'health surveillance system' relied on regular chest x-rays, and the issuing of a 'mine workers health certificate', before anybody could work in the mining industry. The thrust was to detect silicosis and tuberculosis, before commencement and possible removal of mineworker, once found.



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In 1994 the Mines Safety and Inspection Act was introduced, followed by its attendance Regulations in December 1995.

The objects of the new Mines Safety and Inspection Act were:

1. To promote, and secure so far as is practicable, the health, safety and welfare of persons engaged in mining operations; and
2. To assist employers and employees to identify hazards relating to mines, mining operations, work systems and plant at mines; and
3. To protect employees against the risks associated with mines, mining operations, work systems at mines, and plant and hazardous substances at mines by eliminating those risks, where practicable, or imposing effective controls in order to minimise them; and
4. To facilitate cooperation and consultation between employers and employees, and associations representing employers and employees, and to provide for participation of those persons and associations in the formulation and implementation of health and safety standards and optimum working practices; and
5. To provide procedures for employers and employees to contribute to the development and formulation of safety legislation for mines and mining operations and to consult regarding its administration.

Debate centered on the content of the Health Assessment with discussion on the common exposures seen on mine employees and possible health impact these had. A Medical Advisory Panel was convened involving occupational and general physicians to develop an appropriate health assessment. Industry and union occupational health personnel were also contacted for their views. Universally it was decided not to regulate on fitness for work, or on issues of lifestyle.

Detail of the Health Surveillance Program:

In deciding the content of any health surveillance program, consideration needs to be made of the sensitivity and specificity of any screening test adopted. Discussion was entertained on the common and/or unique medical diseases/injuries possibly arising from working in the mining industry. The target organs were then considered and a review made of the appropriateness (sensitivity, specificity, predictive value, validity and reliability) of the screening tests considered.

Common exposures of mine employees, considered by the panel included:

- Dust/fumes (silica, diesel exhaust, PAH, heavy metals)
- Chemical (solvents, alkalis, acids, cyanide)
- Vibration (segmental, whole body and noise)
- Manual materials handling
- Heat

Then consideration was made of the target organs, and included:

- Respiratory system
- Kidneys
- Liver
- Musculoskeletal, especially the lumbar and cervical spine
- Central nervous system and sensory organs
- Skin Haemopoietic systems/blood biochemistry

The developed position by the Medical Advisory Panel and accepted by all parties, resulted in a highly selective health assessment, centering on a validated respiratory questionnaire (MRC 1976), lung function testing, audiometry, and when appropriate a chest x-ray.