Health & Safety – Grain Workers in Cape Town

Many diseases of the lung are caused by breathing in harmful substances in the workplace. The four main kinds of occupational lung diseases are caused by:

* mineral dust (eg. coal dust or kaolin)
* gases or fumes (eg. ammonia or chlorine)
* organic dusts (eg. grain or cotton)
* substances that cause lung or pleural cancer (eg. asbestos or plutonium)

Many studies of these diseases have been done overseas, but very few have been done in South Africa. Therefore the Department of Medicine at UCT and the Industrial Health Research Group (IHRG) decided to look into the extent of the problem.

Grain dust was chosen as the area of study for these reasons:

1. There are many grain workers in South Africa, with a fair proportion in the Cape Town area. The Erasmus Commission in 1974 estimated that nearly 22,000 people were involved in the milling of grain at major mills and a further 56,000 people worked in bakeries in South Africa. Many thousands more are involved in the cultivation, handling, processing and distribution of grain. Therefore a study of the hazards in this industry would have important practical implications for a large number of workers.
2. The milling industry is dominated by four management groups that are represented in the Chamber of Milling.
3. The milling industry is strongly organised by A/ECWU.

In the initial planning stages both the union and the management were approached and both agreed to support the study subject to certain ethical conditions:

* workers were to be clearly informed of the study, and informed consent was obtained from all the workers
* the workers were assured that their individual results would be kept confidential
* follow-up meetings with all parties concerned would be held to explain the implications of the group results
* no worker would be victimised (for example by losing their job) as a result of any test. In particular, no worker would be disqualified from the provisions of any medical

aid or pension scheme as a result of the tests.

The lung diseases caused by grain dust

1. Grain fever - this is an allergic condition caused by breathing in mouldy grain. Workers complain of fever, chills, aches and pains, loss of appetite, cough and shortness of breath. Their lung functions when measured are found to be decreased. It is not thought to result in permanent damage to the lungs.
2. Asthma occurs in grain workers because of a reaction to grain dust. When grain is harvested, other things get harvested along with it. A study has shown that besides grain, grain dust contains silica, fungi, insects, hairs of rodents, feathers of birds and chemicals like pesticides. Many of these things can cause asthma.
3. Chronic bronchitis is more common in grain workers than in the normal population. It is irreversible and causes chronic disability.

Besides these lung diseases, grain dust can also cause irritation to the eyes and nose.

The grain study

The study was designed to compare chest problems in 582 grain mill workers with 153 workers who are not exposed to dust in their workplace (a packaging company). All the workers responded to questionnaires about their work, how dusty their work was, their smoking habits and their chest problems. All of them had their lung functions tested before work on a Monday and after work on a Thursday. They were also given a dose of medicine that is given to asthmatic people to open their chests, and then the lung function test was done again.

The main results of the study showed that:

* More grain workers (47%) suffer from chest problems than the packaging workers (30%)
* Grain workers in the dustiest departments (raw material intake and the silo department) suffer more from chest complaints than workers in the less dusty departments.
* More grain workers (23%) showed a significant decrease in their lung functions over the working week than the packaging workers (9%)

The results were reported back to both the workers and the management. Recommendations were then drawn up from discussion of the findings for submission to the Chamber of Milling.

Recommendations

1. Recommendations for further research:
- whether there is a high turnover of workers in the grain industry because of health problems. This is important because some studies have not shown either an increase in asthma or in chronic chest disease in the grain industry as one would expect. Some people explain this as workers leaving the work soon after starting because they begin to have chest problems.
- study of agricultural workers, as this has not yet been studied in South Africa.

2. Recommendations for the mills:
- dust level measurements in the mills
- proper maintenance of existing ventilation systems
- an independent engineering assessment of the ventilation systems based on dust levels
- improved ventilation where needed
- masks only used as a short term option until engineering controls are corrected
- regular health checks for workers should include lung tests

3. Recommendations for the state:
- a dust standard for grain should be set and enforced based on the available literature. At present the standard recommended in the USA is 4 mg/m3 because studies have shown that it is only at this low dust level that grain workers do not suffer more from chest disease than other workers.
- occupational asthma should be a compensable disease. This is the case in Germany since 1961, and Britain since 1982.

So far the union has negotiated access with one of the milling companies for a medical officer and an engineer to do dust measurements and assess the ventilation systems. The recommendations that come out of the study will be used in negotiation between union and management.

(Industrial Health Research Group, Cape Town, Dec 1984)