

## **Annex 8 – Health Surveillance Protocol for Silicosis**

### **GENERAL GUIDELINES**

Employers shall in the first instance carry out a workplace risk assessment as it is described in the Good Practice Guide, to identify where Employees may be at specific risk from health hazards related to Respirable crystalline silica. The implementation of the Health Surveillance Protocol will depend on the results of the risk assessment.

All health surveillance shall be conducted professionally by competent medical personnel and in accordance with current national legislative requirements.

The employee(s) or external medical adviser who has a responsibility for the safety and health program should have a working knowledge of the elements of the respiratory medical surveillance program.

The objectives of the specific Respirable crystalline silica related health surveillance are to:

- Detect adverse health effects early;
- Establish a baseline from which to assess changes that may develop;
- Prevent further harm being caused.

The potential benefits are:

- Identifying individuals affected;
- Identifying potentially hazardous working conditions and check the effectiveness of the control measures in the workplace;
- Providing feedback on the accuracy of risk assessments;
- Developing data on which epidemiological studies can be based.

### **RESPIRATORY HEALTH RISKS**

The primary health risk of exposure to dust containing Respirable crystalline silica is a respiratory disease called **silicosis**. It's why it is essential to focus the medical surveillance on the lungs. Further, there is some evidence that people suffering from silicosis are at a higher risk of developing lung cancer. Also people exposed to dust in general and those suffering from dust related respiratory diseases (pneumoconiosis, silicosis, etc.) have a higher risk of developing tuberculosis. This should be taken into consideration when performing the medical surveillance.

### **CONTENT OF THE RESPIRATORY MEDICAL SURVEILLANCE PROGRAM**

#### **1) The respiratory medical surveillance program should include the following:**

- A **medical file** will be established for each Employee at the time of hiring. The actual format is unimportant, but the records need to be accessible for authorised medical professionals, updated, secure, linked (e.g. dust exposure data), confidential and kept for 40 years following the end of exposure.

This dossier comprises in particular, in accordance with national legislation, the following essential elements:

- Identification data;
- Other useful demographic data (personal and family history);
- Employee job profile;
- History of the occupational and extra-occupational activities which detail exposure to potentially harmful dust, chemicals and other physical agents (radiation);

- Medical history that focuses on the presence of respiratory symptoms (e.g. cough, sputum, shortness of breath, wheezing);
- Smoking habits (number of cigarettes per day, duration...).
- **Medical examination** of the thorax. The examination should note whether observations relating to the chest are normal or not (e.g. symmetry, expansion, percussions, breath sounds, palpitation, wheezes, rales and rubs).
- **Functional testing:**
  - Although abnormalities shown by spirometry or pulmonary function tests are non-specific (e.g. smoking is an important confounding factor), respiratory functional testing is regarded as a useful component of respiratory medical surveillance program for baseline evaluation and periodic monitoring. It allows detection of a pulmonary function loss in its earliest stages.
  - Standardized methods for spirometry testing and equipment specifications have been recommended by professional associations such as the European Respiratory Society (1993) and the American Thoracic Society (1995).
- **Radiological examination:** To follow the radiographic changes in workers exposed to crystalline silica is the most sensitive means of early detection of silicosis. Abnormalities are usually seen radiographically before pulmonary function loss can be detected by spirometry or before symptoms appear. Periodic chest x-rays are therefore a vital part of the respiratory medical surveillance.
  - A full size, postero anterior (PA) chest X-rays, preferable obtained using a high kilovoltage technique (smaller formats coming from computerized techniques are not suitable).
  - Films should be read by qualified and trained radiograph readers or pneumologists.
  - Guidelines on proper equipment and techniques have been extensively published. More information on current practice can be obtained from the International Labour Organization (ILO), 1211 Geneva 22, Switzerland.
  - Films should be classified in accordance with the 2000 Guidelines for the Use of ILO International Classification of Radiographs of Pneumoconiosis. The implementation and the follow-up of the guidelines on proper equipment and techniques could allow later, if necessary, to classify the chest X-ray accordingly.
  - The frequency of the chest X-ray examination will be determined by an occupational health practitioner, based on an assessment of the risk from exposure to Respirable crystalline silica. Be aware of existing regulatory restrictions in some countries about the frequency of the X-ray examination. For advice, consult a qualified occupational health practitioner.
  - The employees, having been in contact with / exposed to Respirable crystalline silica and who have stopped their activities with a particular Employer (retired / new professional orientation) must be able to benefit from a medical follow-up at their request. The Employers commit themselves within the framework of national and EU provisions to facilitate this medical follow-up.

## 2) Record keeping and confidentiality:

- **Medical records** must be kept securely, whether in-house or out-sourced. Access to these medical records will take place only in accordance with national legislation.
- Good **communication** is essential if the objectives of a health surveillance program are to be met.
  - The Employee must be informed of the results of his medical check-up;

- The results of the medical surveillance program, disclosed in such a manner that individuals cannot be identified, should be used to enhance existing health and safety control measures at the workplace.

#### REFERENCES:

- Occupational Health Program for exposure to Crystalline silica in the Industrial Sand Industry – National Industrial Sand Association (NISA) – March 1997
- Screening and surveillance of workers exposed to mineral dust – WHO – 1996
- The European Respiratory Journal – Volume 6, Supplement 16, March 1993
- Guidelines for the use of the ILO International Classification of radiographs of Pneumoconiosis – Revised edition 2000 – International Labour Organization
- ATS (1995) Standardization of spirometry - American Journal of respiratory and critical care medicine, 152:1107-1136
- Occupational Health Management in the Quarry industry – Quarries National Joint Advisory Committee – version 1 May 2004
- Health & Safety at work, Information notices on diagnosis of occupational diseases, European Commission, Employment & social affairs, Report EUR 14768.