Occupational Disease Casebook — Occupational Asthma
This booklet is prepared by the Occupational Safety and Health Branch, Labour Department

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For enquiries about addresses and telephone numbers of offices of the Labour Department, please call 2559 2297 or visit the Labour Department’s website at http://www.labour.gov.hk/eng/tele/osh.htm.

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Occupational asthma is caused by prolonged inhalation of allergens at work, which results in bronchial hypersensitivity to these allergens leading consequently to episodic attacks of airway obstruction (i.e. asthma). The more common allergens include isocyanates, rosin fumes, formaldehyde, flour and protein.

As occupational asthma shares the same symptoms as ordinary asthma, its diagnosis relies very much on detailed occupational and medical history as well as information on the relationship between work and attacks. Most patients do not have asthma before the relevant employment and asthmatic attacks appear after they have worked for a period of time. During attacks, the patient may have difficult breathing, shortness of breath, wheezing and coughing. Attacks will become more frequent and severe in the course of work, but the condition will improve during vacation. The treatment for occupational and ordinary asthma is the same, mainly by the use of bronchodilators to alleviate the symptoms during attacks. In severe cases, steroid may be used at the same time.

The only way to prevent attacks of occupational asthma is to avoid exposure to allergens in the workplace. Most patients with occupational asthma have to change their jobs and sustain losses in consequence. Therefore, it is of utmost importance to prevent contracting occupational asthma.

The objective of this booklet is to illustrate, with four cases, the causes of occupational asthma and the specific measures to prevent the disease.
Case 1

Decoration Worker

Case Summary

Peter was a decoration worker and his main duty was to put waterproof silicone rubber sealants onto window jambs to prevent leakage. Having taken up the job for one and a half years, he found that he had breathlessness, shortness of breath, coughing and wheezing whenever he worked for about ten minutes as a result of inhaling odours of the waterproof sealants. In severe cases, he had to seek treatment from the Accident & Emergency Department. Later, he attended the occupational health clinic and was diagnosed as having occupational asthma.

Preventive Measures

Cases of occupational asthma similar to Peter’s can be prevented by taking the following measures:

1. Ensure good ventilation and an effective exhaust system installed at the workplace to reduce the accumulation of chemicals.
2. Pre-employment and periodic medical examinations allow early detection of asthmatic symptoms and prevent deterioration of the disease.
3. Use suitable respirators.

Causes of the Illness

According to the doctor’s analysis, Peter contracted occupational asthma because of the following reasons:

1. The waterproof sealants contain an allergen called methylene diphenyl disocyanate which can cause asthma.
2. Inadequate ventilation in the workplace led to the accumulation of chemicals.
3. Failure to use a suitable respirator at work.
**Case 2**

**University lecturer**

**Case Summary**

Ann was a lecturer of the department of anatomy at a university. Apart from teaching, she often had to conduct research work in the autopsy room. The specimens that she handled were preserved in “formalin”. At the beginning, she had eyes and throat discomfort, and with symptoms like tearing and running nose. Later, she had breathlessness, cough and wheezing soon after inhaling volatile formalin vapours, and needed to take bronchodilator to relieve the symptoms. She suspected that she had asthma and went to the hospital for treatment. After examination, she was diagnosed as having occupational asthma.

**Causes of the Illness**

According to the doctor’s analysis, Ann contracted occupational asthma because of the following reasons:

1. Formalin contains formaldehyde which is an allergen that can cause asthma.
2. After taking specimens out of the specimen bottles, she often failed to re-cap the bottles, which caused continuous vaporization and accumulation of formaldehyde in the room.
3. No suitable exhaust system was installed in the autopsy room to remove the accumulated formaldehyde.

**Preventive Measures**

In order to prevent Ann from developing occupational asthma, the following measures can be adopted:

1. Maintain good working habits and re-cap the bottles right after taking specimens out.
2. Ensure good ventilation and an effective exhaust system installed at the workplace to reduce the accumulation of chemicals.
3. Pre-employment and periodic medical examinations allow early detection of asthmatic symptoms and prevent deterioration of the disease.
4. Use suitable respirators.
Case 3
Baker

Case Summary
John had been working in a bakery for more than twenty years. Every day, he used a large amount of flour, sugar, eggs and yeast powder to bake various kinds of bread and cakes. In the course of baking, he used his hands to mix flour and other ingredients, resulting in the flour particles floating in the air. As early as ten years ago, John had already had symptoms like dry throat, cough, etc. Later on, he also had wheezing. The condition of his illness fluctuated from time to time, and all along it could not be cured. He then sought treatment from the Occupational Health Clinic of the Labour Department and was diagnosed as having occupational asthma.

Preventive Measures
John shall take the following preventive measures:
1. Use suitable equipment with covers, such as mixers, to mix flour and other ingredients.
2. Use an effective exhaust system or open windows to improve ventilation at the workplace.
3. Pre-employment and periodic medical examinations allow early detection of asthmatic symptoms and prevent deterioration of the disease.
4. Use suitable respirators.

Causes of the Illness
According to the doctor's analysis, John contracted occupational asthma because of the following reasons:
1. Constant inhalation of flour particles floating in the air while at work.
2. Failure to use suitable ventilation system or allow adequate air circulation, causing accumulation of flour particles.
3. Failure to use a suitable respirator.
**Case Summary**

Frankie had been working as a welder for more than three years, during which he always inhaled fumes generated from welding. About half a year ago, he often had running nose, cough, breathlessness and wheezing after work, that even made him unable to sleep. On some occasions, he had to use bronchodilators to relieve the symptoms. He noticed his symptoms worsened after work, but there was some improvement when he was on leave. Having been examined thoroughly by a doctor, he was diagnosed as having occupational asthma.

**Preventive Measures**

Cases of occupational asthma similar to Frankie's can be prevented by taking the following measures:

1. Welding should be performed at well-ventilated workplaces installed with suitable exhaust systems to reduce the accumulation of allergens.
2. Pre-employment and periodic medical examinations allow early detection of asthmatic symptoms and prevent deterioration of the disease.
3. Use suitable respirators.

**Causes of the Illness**

The causes of Frankie's occupational asthma were as follows:

1. The welding fumes contained ozone and metals such as chromium that sensitized his airways and finally led to asthma.
2. Inadequate exhaust ventilation at the workplace resulted in the accumulation of allergens.
3. Failure to use suitable respirators during welding.
Conclusion

Although this booklet only presents four cases from different industries, the causes of these cases and the respective preventive measures are also useful to employers and employees of other trades/industries for reference.

In fact, the prevention of occupational asthma is based on the following principles:

1. Choose and use materials that contain no allergens as far as possible.
2. Acquire good working habits to reduce contact with and inhalation of allergens.
3. Ensure a good ventilation-exhaust system installed at the workplace to reduce the accumulation of allergens.
4. Undergo pre-employment and periodic medical examinations for early detection of asthmatic symptoms and prevention of disease deterioration.
5. Use suitable respirators at work.

Employers and employees can take appropriate preventive measures in accordance with the above principles to reduce the risk of employees contracting occupational asthma.

Occupational asthma is one of the prescribed occupational diseases under the Employees’ Compensation Ordinance. If you suspect that you have contracted this disease or any other occupational disease, please call the Occupational Health Clinic of the Labour Department to make an appointment for consultation.

Address: Kwun Tong Occupational Health Clinic
2/F Kwun Tong Jockey Club Health Centre
457 Kwun Tong Road, Kwun Tong, Kowloon

Telephone: 2343 7133

Enquiry Service

For enquiries on this booklet or advice on occupational health and hygiene matters, please contact the Occupational Safety and Health Branch of the Labour Department through:

Telephone: 2852 4041
Fax: 2581 2049
E-mail: enquiry@labour.gov.hk

Information on the services offered by the Labour Department and on major labour legislation can also be found by visiting our website http://www.labour.gov.hk.

Information on the services offered by the Occupational Safety & Health Council can be obtained through hotline 2739 9000.

Occupational Safety and Health Complaint Hotline:
If you have any complaints about unsafe workplaces and practices, please call the Labour Department's occupational safety and health complaint hotline at 2542 2172.