

Occupational Disease Casebook

Occupational Infection



Occupational Safety and Health Branch
Labour Department



Contents

Introduction	2
.....	
Case 1: Tuberculosis	3
.....	
Case 2: Infection by <i>Streptococcus suis</i>	6
.....	
Case 3: Legionnaires' disease	9
.....	
Case 4: Parenterally Contracted Viral Hepatitis	12
.....	
Conclusion	15
.....	
Enquiries	16
.....	

Introduction

Occupational hazards can generally be divided into few main categories

- ◆ **Physical hazards** : for example, temperature, barometric pressure, noise and radiation, etc.
- ◆ **Chemical hazards** : for example, organic solvents and cleansing agents, etc.
- ◆ **Biological hazards** : for example, bacteria, virus, fungus, etc.
- ◆ **Ergonomic hazards** : for example, incompatibility between the height of chairs and tables or the size of tools with the body-built of employees.

Occupational hazards vary from industry to industry. As far as biological hazards are concerned, industries at risk include health care services, agriculture and livestock keeping industries, slaughtering, transportation of livestock and manufacturing and processing of animal and plant products. Precautions should also be taken against these hazards for work involving frequent contact with and the handling of contaminants and waste, such as cleaning, drainage and repairs.

Micro-organisms can enter the body through different routes like inhalation, contact with skin (especially damages skin) or mucous membrane. If workers do not take appropriate precautions at work, they may get infected and develop diseases.

The objective of this booklet is to illustrate, through case studies, the causes of occupational infections, and to advise on specific preventive measures.

Case 1

Tuberculosis

Case Summary

Margaret had been working as a health care worker at a residential care home for the elderly for three years. Her daily job was to provide personal care service for the residents, such as assisting them in eating and bathing, tidying beds and cleaning wounds. About three months ago, Margaret began to cough persistently. Later on, she had blood-stained sputum, weight loss and frequent night sweating. She sought treatment at a chest clinic. The X-rays showed opacities in her lungs. *Mycobacterium tuberculosis* was identified in her sputum. The doctor diagnosed that she had pulmonary tuberculosis.



Case Analysis

Margaret contracted pulmonary tuberculosis for the following reasons:

- 1 Three months before the onset of the disease, Margaret was taking care of a resident, Mr CHAN, who had been coughing for weeks. He was arranged to see a doctor after a few weeks when he had blood-stained sputum. Mr CHAN was diagnosed as having pulmonary tuberculosis and admitted to a hospital for treatment.
- 2 While Mr CHAN was staying at the elderly home, his droplets containing the bacteria might disperse in the air whenever he coughed and sneezed. As Margaret had not worn a suitable mask when taking care of him, she might have inhaled the infective droplets.
- 3 Inadequate ventilation at the elderly home resulted in accumulation of the bacteria in the air.
- 4 Margaret did not have adequate rest and exercise, which made her more susceptible to diseases.



Preventive Measures

The following measures can help to prevent contracting pulmonary tuberculosis at a residential care home for the elderly:

- 1 Keep the workplace clean and well-ventilated.
- 2 Staff should put on surgical masks properly while at work.
- 3 Residents and staff with symptoms of respiratory tract infection should put on surgical masks.
- 4 Cover noses and mouth with tissue paper when coughing or sneezing and handle respiratory secretions properly. Frequent hand hygiene to keep hands clean and to reduce transmission of bacteria.
- 5 If residents or staff are suspected to have contracted pulmonary tuberculosis with symptoms such as persistent cough, blood-stained sputum, weight loss, afternoon fever and night sweating, they should seek medical treatment as soon as possible.
- 6 Leading a healthy lifestyle to attain good health such as:
 - good personal hygiene;
 - well-balanced diet;
 - regular physical activity;
 - adequate rest;
 - cheerful mood;
 - quit smoking and
 - avoid alcohol, etc.



Case 2

Infection by *Streptococcus suis*

Case Summary

Simon was employed in a meat stall in the wet market. His daily job was to cut up butcher meat and handle raw pork for sale. One day, he accidentally injured his index finger while chopping the pork, but he paid no heed to the wound and continued to work. Three days later, he had headache. Later on, he developed fever, neck rigidity and vomiting. He was admitted to the hospital and diagnosed as having *Streptococcus suis* meningitis. Although his life was not in danger after treatment, he had sensorineural hearing loss as a complication.



Case Analysis

Simon contracted *Streptococcus suis* meningitis for the following reasons:

- 1 He was unaware of the possible existence of *Streptococcus suis* in raw pork and did not take any preventive measures.
- 2 He did not take immediate treatment to his wound which was subsequently infected.



Preventive Measures

The following measures can be taken to prevent infection by *Streptococcus suis*:

- 1 When handling pigs or raw pork, wear protective gloves.
- 2 Wear cut-resistance gloves when chopping pigs or raw pork to prevent the hands from being injured.
- 3 Clean and cover wounds properly.
- 4 Wash hands thoroughly after handling pigs or raw pork.



Case 3

Legionnaires' Disease

Case Summary

Mike was a technician responsible for the repair and maintenance of fresh water cooling towers of air-conditioning systems. About a week ago, he suddenly developed fever, cough, shortness of breath and muscle pain, etc. Later on, he became confused and was hospitalized. His chest X-ray showed signs of pneumonia and other investigations confirmed the diagnosis of Legionnaires' disease.



Case Analysis

Mike contracted Legionnaires' disease for the following reasons:

- 1 Three days before the onset of the disease, he had repaired a malfunctioned fresh water cooling tower in a commercial building. As the cooling tower was not cleaned and disinfected regularly, the bacteria, *Legionella pneumophila* proliferated in the tower and tiny water droplets and aerosols containing the bacteria were dispersed into the air.
- 2 He had no knowledge about Legionnaires' disease, and did not know that the disease could be transmitted through inhalation of contaminated water droplets or aerosols. Therefore, he did not wear the appropriate mask.
- 3 He was a smoker and tobacco smoke made him more susceptible to infection.



Preventive Measures

The following measures can be adopted to prevent cooling tower maintenance technicians from contracting Legionnaires' disease:

- 1 Clean and disinfect fresh water cooling towers regularly to prevent the proliferation of the bacteria.
- 2 Install aerosol elimination devices in cooling towers to minimize the transmission of the bacteria through aerosol.
- 3 Use appropriate respirators to avoid inhalation of contaminated aerosol while carrying out the maintenance work involving cooling towers.
- 4 Leading a healthy lifestyle to attain good health such as:
 - good personal hygiene
 - well-balanced diet;
 - regular physical activity;
 - adequate rest;
 - cheerful mood;
 - quit smoking and
 - avoid alcohol, etc.



Case 4

Parenterally Contracted Viral Hepatitis

Case Summary

Lily had been working as a nurse in a private clinic for more than three years. She was responsible for dressing wounds, giving injections to clients and assisting the doctor during consultations. About two months ago, she developed fatigue, anorexia, abdominal discomfort, nausea and vomiting, etc. Later, her skin and the sclera (the white of her eyes) gradually turned yellow. She was admitted to the hospital for treatment. After a series of examinations, she was diagnosed to have acute Hepatitis B.



Case Analysis

Lily contracted acute Hepatitis B for the following reasons:

- 1 Two months before the onset of the disease, she gave an injection to a Hepatitis B carrier. She punctured her left thumb accidentally when re-capping the needle after the injection.
- 2 She had not been vaccinated against Hepatitis B.
- 3 She only covered her wound with dressing. She neither reported the accident to her supervisor nor sought proper medical treatment immediately.



Preventive Measures

To avoid contracting Hepatitis B as Lily's case, the following measures can be adopted:

- 1 Undergo a pre-employment medical examination if there are possible exposures to blood or other body fluids at work. Vaccination against Hepatitis B can be considered if the examination result is negative for Hepatitis B antibodies.
- 2 Formulate infection control guidelines to ensure that employees understand the proper procedure in handling instruments contaminated with blood or other body fluids.
- 3 Provide appropriate information and training including relevant infection control guidelines.
- 4 In the case of accidental injury by contaminated instruments, clean and cover the wounds properly. Inform the employer or supervisor and seek medical treatment immediately.



Conclusion

Although this booklet only presented four cases of occupational infection from different industries, the causes involved and the respective preventive measures are also useful to employers and employees of other trades as references

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

1. Keep the workplace clean and hygienic, and eliminate or control the sources of infection to reduce the risk of disease transmission.
2. Ensure adequate ventilation in the workplaces.
3. Formulate, provide and monitor safety management system and guidelines.
4. Provide appropriate information and training to employees.
5. Employees with symptoms of infectious diseases should seek medical treatment as soon as possible to reduce the risk of disease transmission.
6. Adopt preventive measures and use personal protective equipment (PPE) that are appropriate for the work nature. PPE should be properly maintained and promptly replaced if they have defects.
7. If there is a wound, clean and dress it properly to avoid infection.
8. Vaccinations can prevent certain infectious diseases (e.g. Hepatitis B). Employees who are not immune to these infectious diseases can consider receiving the appropriate vaccinations.
9. Leading a healthy lifestyle to attain good health and to reduce the risk of infection.

Employers and employees can take appropriate preventive measures in accordance with the above principles to minimize the risk of contracting infections.

Enquiries

If you wish to enquire about this booklet or other occupational safety and health matters, please contact the Occupational Safety and Health Branch of the Labour Department through:



2852 4041 or
2559 2297 (auto-recording service available outside office hours)



2581 2049



enquiry@labour.gov.hk

Information on the services offered by the Labour Department and on major labour legislation is also available on our website at www.labour.gov.hk.

For details on the services offered by the Occupational Safety and Health Council, please call 2739 9000, or browse the website at www.oshc.org.hk.

Occupational Health Clinics of the Labour Department

Any worker who may have contracted work-related illness, please telephone or attend the Occupational Health Clinic for appointment booking. Doctor's referral is not required.

Kwun Tong Occupational Health Clinic



2343 7133

Fanling Occupational Health Clinic



3543 5701

Complaints

If you have any complaint about unsafe operations or environments at workplaces, please call the LD's OSH complaint hotline at 2542 2172 or fill out and submit an online OSH complaint form on our website. All complaints will be treated in the strictest confidence.



Online OSH Complaint Form

This booklet is issued free of charge and can be obtained from offices of the Occupational Health Service of the Labour Department. It can also be downloaded from website of the Labour Department. For enquiries about the addresses and telephone numbers of the offices, please visit the website of Labour Department or call 2852 4041.

This booklet may be freely reproduced except for advertising, endorsement or commercial purposes. Please acknowledge the source as “Occupational Disease Casebook – Occupational Infection”, published by the Labour Department.

