

OHS INFORMATION SHEET 16A: LEGIONELLA AND COOLING TOWERS

March 2009

What is Legionella (Legionnaires' Disease)?

Legionnaires' Disease is caused by the Legionella bacteria. It is a very rare form of pneumonia (chest infection). Early symptoms are very similar to influenza. It is diagnosed from a culture of the bacteria from clinical specimens (e.g. sputum) taken from patients thought to be suffering from the infection. The infection can be treated with antibiotics. However, severe cases can result in death.

Where does it occur?

Legionella bacteria are associated with water and are widespread in the environment. They are found in lakes, rivers, hot springs and other bodies of water as well as soils.

Legionella may also be found in cooling towers associated with air-conditioning systems and industrial processes. The temperature of water in these systems is kept between 28°C and 45°C. These conditions allow the bacteria to multiply in large numbers.

Optimal temperatures for Legionella growth are 25°C -50°C. The most rapid proliferation occurs at 38 °C.

How do you get Legionnaires' disease?

Infection is acquired through breathing in aerosols (very fine droplets of water) which contain the bacteria. It is not passed from person to person nor is it acquired by drinking water contaminated with Legionella.

Who is at risk?

The disease does not affect everyone who comes into contact with the bacteria.

The groups most at risk are:

- People over 50 years of age (predominantly males)
- Heavy smokers
- Heavy drinkers
- Diabetics
- People with chronic lung disease
- People with impaired immune systems (i.e. body defence mechanisms)

The *Health (Infectious Diseases) Regulations 1990* require cooling towers to be maintained and disinfected in accordance with set Guidelines and Standards (see list below).

What is Monash University doing?

Monash University is in compliance with all of the Victorian Government Regulations, Guidelines and Standards (Refer to list below).

Maintenance Services at each Campus of the University carry out regular maintenance checks of Cooling Towers. Cooling Towers at most campuses have been or are being fitted with an "Automatic Dosing System". This means that the towers are automatically continuously dosed with a potent Broad Spectrum Biocide (a substance which kills bacteria). On some campuses, cooling towers are additionally dosed with an alternative Biocide by an accredited external contractor. All of these measures are designed to prevent growth of Legionella as well as the emergence of new strains of bacteria.

For all sites total bacterial counts (TBC) are performed monthly. If the TBCs are elevated immediate further treatment and testing is carried out. An independent (NATA accredited) company carries out the tests. All cooling towers at all campuses are cleaned quarterly. At all campuses testing specific for Legionella is carried out in accordance with the requirements of the Victorian Government Department of Human Services management programmes for cooling towers.

All new cooling towers at the University are fitted with "drift eliminators" and conform to AS/NZS 3666. Drift eliminators decrease the 'fall out zone' of any aerosols formed by the cooling tower and therefore decrease the possibility of bacterial infection. In addition, all cooling towers at the various campuses are run at relatively low temperatures ranging from 25°C - 34°C.

Standards and Guidelines

- Crimes Act 1958
- Health (Infectious Diseases) Regulations 1990: Division 3- Prevention of Legionella
- Occupational Health and Safety Act 2004
- Guidelines for the Control of Legionnaire's Disease 1989 (Vic. Government)
- Legionnaire's Disease and Cooling Towers, Information for Owners and Managers 1996 (Vic. Government)
- Evaporative Coolers, An Operation and Maintenance Guide for Owners 1997 (Vic. Government)
- *Australian/New Zealand Standards AS/NZS 3666*
- Building (Legionella) Act 2000, Building (Legionella Risk Management) Regulations 2001 and Building (Cooling Tower Systems Register) Regulations 2001.
- Plumbing (Cooling Towers) Regulations 2001
- Health Act 1958
- Health (Legionella) Regulations 2001

For Further Information

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