

# Legionnaires' disease



## Causative agent

Legionnaires' disease (LD) is an infectious disease caused by a type of bacteria called *Legionella*. The disease was named after an outbreak of chest infection occurring in a Legion Convention in the United States in 1976.

## Clinical features

Patients usually present with fever, cough, shortness of breath, tiredness, headache, muscle pain, and may have abdominal pain and diarrhoea. In severe cases, neurological symptoms (e.g. confusion) and respiratory failure may appear and some may cause death.

Some patients infected with *Legionella* bacteria may have a milder, non-pneumonic form of disease called Pontiac fever, which is a self-limiting febrile illness of short duration.

## Mode of transmission

*Legionella* bacteria are found in various environmental settings and grow well in warm water (20 to 45°C). They can be found in aqueous environments such as water tanks, hot and cold water systems, cooling towers, whirlpool spas, water fountains, humidifiers and home apparatus that support breathing.

People may get infected when they breathe in contaminated droplets (aerosols) and mist generated by artificial water systems. They may also get the infection when handling garden soil, compost and potting mixes.

In general, the disease is not transmitted by person-to-person contact, eating or drinking.

## Incubation period



About 2 to 10 days.

## Risk factors

While anyone may develop LD, the following groups of people are at higher risk:

- Men
- People of increasing age, particularly over 50 years old
- Smokers
- Alcoholics
- Persons with weakened immunity, especially those with chronic illnesses (such as cancer, diabetes mellitus, chronic lung or kidney diseases) and those taking corticosteroids or drugs that suppress body immunity

The following situations may also increase the risk of infection:

- Poor maintenance of water systems
- Living in areas with old water systems
- Living near cooling towers or fountains
- Using electric water heaters, whirlpool spas or hot water spring spas
- Recent stay in hotels or ships

## Management

It can be treated with antibiotics.

## Prevention

Currently, there is no vaccine available for LD.

It is important to operate and maintain properly designed man-made water systems to prevent LD. For more information about the good practices in handling man-made water systems, please visit the website of the Electrical and Mechanical Services Department at <https://www.emsd.gov.hk/en/home/index.html> for the Code of Practice for Prevention of LD and the Housekeeping Guidelines for Cold and Hot Water Systems for Building Management published by the Prevention of LD Committee.

Members of the public should observe the following advice to reduce the risk of infection:

- Maintain good personal hygiene.
- Build up good body immunity by having a balanced diet, regular exercise, adequate rest, reducing stress, do not smoke and avoid alcohol consumption.
- Strainers in water taps and shower heads should be inspected, cleaned, descaled and disinfected regularly or at a frequency recommended by the manufacturer.
- If fresh water plumbing system is properly maintained, it is not necessary to install domestic water filters. Use of water filters is not encouraged as clogging occurs easily, and this can promote growth of microorganisms. In case water filters are used, the pore size should be 0.2 micrometer (µm) and the filter needs to be changed periodically according to the manufacturer's recommendations.
- Drain and clean water tanks of buildings at least quarterly.
- Drain or purge for at least 1 minute the infrequently used water outlets (e.g. water taps, shower heads, hot water outlets etc.) and stagnant points of the pipework weekly or before use.
- Seek and follow doctor's professional advice regarding the use and maintenance of home respiratory devices and use only sterile water (not distilled or tap water) to clean and fill the reservoir. Clean and maintain the device regularly according to manufacturer's instructions.

After cleaning/disinfection, rinse the device with sterile water, cooled freshly boiled water or water filtered with 0.2 µm filters. Never leave stagnant water in the device. Empty the water tank, keep all surfaces dry, and change the water daily.

- When handling garden soil, compost and potting mixes:
  - wear gloves and a face mask.
  - water gardens and compost gently using low pressure.
  - open composted potting mixes slowly and make sure the opening is directed away from the face.
  - wet the soil to reduce dust when potting plants.
  - avoid working in poorly ventilated places such as enclosed greenhouses.
  - wash hands thoroughly afterwards.
- In addition, immunocompromised persons should:
  - use sterile water or boiled water for drinking, tooth brushing and mouth rinsing.
  - avoid using humidifiers, or other mist- or aerosol-generating devices.
  - if using humidifiers, or other mist- or aerosol-generating devices, fill the water tank with only sterile or cooled freshly boiled water, and not water directly from the tap. Besides, clean and maintain humidifiers/devices regularly according to manufacturers' instructions. Never leave stagnant water in a humidifier/device. Empty the water tank, wipe all surfaces dry, and change the water daily.

