



## **Building Health in the time of Covid-19**

How healthy is your building? Do all your staff have masks? Are there hand sanitisers available? Temperature screening? Social distancing protocols? If so, you may think that you have ticked all the hygiene boxes to allow your business to re-open but, have you thought about the drinking water quality?

As more businesses open under relaxed lock-down conditions, we may be at risk of an outbreak of another serious respiratory illness: Legionnaires' Disease. The sudden closure of buildings during the nation-wide lock-down has created an unprecedented decline in water use at these facilities. This low water usage as well as irregular water temperatures may create conditions conducive for the growth of *Legionella* bacteria, responsible for Legionnaires' disease. Considering the limited health care resources available to treat respiratory infections due to the Covid-19 pandemic, this disease poses a real risk.

There is a risk of infection wherever water droplets or aerosols can be created, including hot and cold water systems (e.g. showers and taps), cooling towers and evaporative condensers of air conditioners, spa baths, saunas, ornamental fountains, humidified food display cabinets and respiratory therapy equipment.

At risk businesses therefore include:

- Hotels, guest houses and restaurants
- Residential complexes
- Commercial buildings (air conditioners and gym showers)
- Industrial companies (cooling towers and air-conditioning)
- Shipping
- Schools
- Sports halls, swimming and leisure pools, spas and saunas
- Dental practices
- Hospitals and care homes

Symptoms range from a mild cough and low fever to rapidly progressive pneumonia, delirium (in some cases), coma and death. Most cases, if correctly diagnosed, can be successfully treated with antibiotics, and Legionnaires Disease cannot be spread via human to human contact. The mortality rate in infected individuals ranges between 10 and 20%. There are currently no vaccines to prevent Legionnaires disease, and prior infection does not prevent re-infection.

Globally, *Legionella* spp. account for 2-5% of community-acquired pneumonia (CAP) cases in adults and is rarely detected in children<sup>1,2</sup>. However, Legionnaires' disease is considerably underdiagnosed

and underreported. It is estimated that less than 5% of cases are reported to public health authorities through passive surveillance.

The prevalence of Legionnaires' disease in South Africa is similarly underestimated. In a survey of pneumonia cases in South Africa from June 2012 through September 2014, *Legionella* spp. were detected in 21 (1.2%) of 1805 cases<sup>3</sup>. Hospital-acquired and travel-associated cases of Legionnaires' disease have also been reported in South Africa. It is very likely that sporadic cases, clusters and even outbreaks occur and are missed. Legionnaires' disease is a notifiable disease in South Africa, and public health authorities must be notified promptly of any suspected or confirmed cases.

Water quality monitoring in buildings is proven to help mitigate the risk of *Legionella* contamination. The proper design, maintenance and temperature of potable water systems are the most important method for preventing the amplification of *Legionella*. Hot water should be maintained above 60°C and delivered to taps at temperatures above 50°C. Cold water should be maintained below 20°C. Plumbing systems should be flushed regularly and low flow areas eliminated.

It is recommended that any commercial facility which has been vacated or underutilized for more than three weeks should test the potable water quality of the facility, as this presents a risk for a Legionnaires' outbreak, unless the water pipes are properly flushed and sanitized.

#### **WATERLAB'S LEGIONELLA TESTING AND WATER RISK MANAGEMENT SERVICES**

Waterlab can offer peace of mind to organisations returning to work. Our specialist consultants and SANAS accredited laboratory can offer a full range of services to help businesses identify, treat and prevent *Legionella* contamination, and in addition can sample and test general microbiological quality, which may have deteriorated in standing water reservoirs and stagnant pipelines. Our services include:

- Initial site-specific post lock-down assessment, sample collection and laboratory analysis
- Recommendation and supervision of emergency and long-term remedial actions
- Site-specific management plan based on risk assessment.
- Risk management planning
- Scheduled cleaning / flushing programmes
- Monitoring and record keeping
- Defined inspection and microbiological monitoring programme for all on-site water systems
- Monthly and annual auditing programmes

There is no known safe level of *Legionella* in building water systems. Cases of Legionnaires' disease have been associated with very low levels of *Legionella* in building water systems<sup>4</sup>. The intent of a water management programme should be to manage building water systems to reduce the hazardous conditions that allow the *Legionella* to grow and spread to susceptible people.

#### **References**

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4. Demirjian A, Lucas CE, Garrison LE, et al., 2015. The importance of clinical surveillance in detecting Legionnaires' disease outbreaks: a large outbreak in a hospital with a Legionella disinfection system- Pennsylvania, 2011–2012. *Clin Infect Dis.* 60:1596-602.

Waterlab (Pty) Ltd was established in 1983 as a service company specialising in analytical chemistry, providing services in the various disciplines of water, being potable water supply, sewage treatment, industrial effluents, acid mine drainage or underground water.

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