

Chapter 7: Training

7.1 Introduction

Without adequate knowledge on the part of all stakeholders, prevention and management of legionellosis is simply not possible, hence the provision of training and/or raising of awareness for all concerned must form a key component of legionellosis risk management. Clearly, training/awareness needs may vary considerably depending on an individual's role or responsibilities. Groups with differing roles in *Legionella* control are outlined below:

- Those involved in risk assessment and risk management activities at a particular location (whether an employee of the organisation or an external consultant)
- Those with a role in investigating cases of legionellosis and managing outbreaks
- The person(s) in an organisation who have been assigned specific responsibility for the supervision of, and implementation of, *Legionella* control measures (these will often, though not always, be the same people as in the first category above)
- Personnel in those workplace environments more favourable to the growth and aerosolisation of *Legionella* bacteria e.g. healthcare facilities, leisure centres, hotels.

Reference to training and competency is made in Chapter 4. The aforementioned chapter deals exclusively with the training/competency requirements for those carrying out risk assessments and for the responsible person designated for *Legionella* control within an organisation.

Those involved in environmental investigations of cases of legionellosis and in assessment of control measures should have, in addition to knowledge of the epidemiology of legionellosis, prior training in both theoretical (e.g. desktop studies) and practical *Legionella* risk assessments (i.e. site visits). They should also have a basic knowledge of building services and have received training in appropriate sampling procedures.

It is highly desirable that all staff working in higher risk locations such as hospitals, hotels, leisure centres, etc. have an awareness of the *Legionella* hazards associated with their work environment and knowledge of appropriate control measures. Training workshops should be undertaken which are tailored to institutions/operatives following a training needs assessment. Basic information sheets on *Legionella* hazards and control should be developed for distribution to workplaces (e.g. Appendix H 'Minimising the Risk' could be used/adapted for this purpose). The information sheets should also have details of relevant websites e.g. UK - HPA, and HSC; Ireland - HPSC, and HSA. The designated responsible person for *Legionella* control in each organisation should carry out awareness sessions with the staff at regular intervals and keep records of these.

7.2 'Competent person' and assessment of competency

The definition of 'competent person' given in Section 2 of the Safety, Health and Welfare at Work Act 2005 is outlined in Appendix G. It relates to the possession of 'sufficient training, experience and knowledge appropriate to the nature of the work to be undertaken'. Assessment of competency therefore falls into two broad areas:

1. **Formal qualification(s)**, if any, possessed by the person. In this regard, Section 2.(2)(b) refers to the 'framework of qualifications referred to in the Qualifications (Education and Training) Act 1999. This, in practice, relates to training or qualifications which have formal validation and recognition in the State through validating bodies, established under the aforementioned Act such as the Higher Education and Training Awards Council (HETAC) (subsequently established by the Minister of Education and Science in 2001). This body is responsible for validation of higher education and training awards and recognition of institutions (e.g. universities, institutes of technology) to which authority to make awards may be delegated. Any third level institution offering further education or training can apply to the HETAC for formal recognition. The Minister also established the Further Education and Training Awards Council (FETAC) under the 1999 Act. The Council recognises and validates shorter courses e.g. those run by FÁS, CERT, vocational educational committees, Teagasc. The formal qualification would also be expected to address the area of the knowledge criterion of the 'competent person' definition.

2. **Experience** would relate to evidence of the practical application of knowledge and training in carrying out the duties assigned. This criterion is necessarily more difficult to assess than that of qualifications as it will generally be a more subjective process and, of course, the person assessing the experience will have to be competent in order to do so.

It is suggested that a person responsible for *Legionella* control in a building or facility should have the following competencies as a minimum:

- Have a basic knowledge of the source, means of transmission and symptoms of legionellosis
- Be aware of the safety, health and welfare at work statutory provisions relating to *Legionella*
- Be able to identify and assess sources of risk
- Have the ability to make suitable and appropriate recommendations on how *Legionella* risk can be managed
- Be able to monitor the effect of any control measures implemented or to identify the appropriate outside expertise where necessary
- Be able to maintain records of all risk assessments, control plans, monitoring, reviews and all other activities associated with *Legionella* control.

7.3 Training matrix

The training matrix (Table 12) is based on the recommendations of the Legionella Control Association in the UK (www.conduct.org.uk) and is provided as guidance to assist statutory duty holders and site responsible persons in identifying the training requirements for managers, supervisors and operatives involved in administration of water management control programmes. Where these posts do not exist in-house, it applies to experts who are brought in.

Table 12. The training matrix for technical aspects

Module	Activity	Statutory duty holder	Responsible person	Site safety officer	Site engineer supervisor or equivalent	Mechanical maintenance officer/technical services	Cleaning / chlorination technician
01	<i>Legionella</i> general awareness	X	X	X	X	X	X
02	<i>Legionella</i> legislation	X	X	X	X	X	X
03	Risk assessment: general principles	X	X	X	X	X	X
04	Water management: general principles	X	X	X	X	X	X
05	Record keeping	X	X	X	X	X	X
06	Data interpretation and reporting	X	X	X	X	X	X
07	Training and competence	X	X	X	X	X	X
08	Programme monitoring and review	X	X	X	X		
09	Contract management	X	X				
10	Water treatment principles		X	X	X	X	X
11	Cleaning and disinfection principles		X	X	X	X	X
12	Sampling and on-site testing principles		X	X	X	X	X
13	Plant and equipment maintenance		X	X	X	X	X
14	Cleaning and disinfection practice					X	X
15	Sampling and on-site testing practice					X	X

X - Training required if client staff directly involved in carrying out cleaning/disinfection, on-site testing, etc.

7.4 Personal Protective Equipment

There are legal requirements under the Safety, Health and Welfare at Work Act 2005 that require employers to protect the health and safety of employees, and of other people associated with their institution, company or business (see Chapter 3). All personnel/contractors must wear suitable PPE identified by a works-specific risk assessment. PPE is any clothing, equipment or substance designed to protect the user from injury or illness. PPE is the very last line of defence in protecting a person's health and safety.

7.4.1 PPE and *Legionella*

Legionellosis is transmitted primarily by inhalation of contaminated aerosols from aqueous sources or from aspiration of contaminated water. Personnel involved in the inspection and maintenance of air-handling and water systems are at risk of contracting legionellosis and should wear appropriate PPE while performing these tasks. Water impermeable gloves should be worn when working with contaminated water or where there is a possibility that the water may be contaminated, (e.g. when taking water samples). **Cuts or abrasions should be covered with waterproof dressings at all times where there is a risk of infection from a variety of bacteria that can be present in contaminated water (e.g. *Pseudomonas aeruginosa*). It should be noted that legionnaires' disease is a respiratory illness and CANNOT be contracted through cuts or abrasions.** Table 13 below lists the minimum PPE required to protect personnel against *Legionella* during routine maintenance or inspection operations in risk situations.

Table 13. Recommended minimum PPE required during maintenance/inspection of water systems and air-handling units

Task	<i>Legionella</i> hazard	PPE
Maintenance/inspection	Aerosol/spray	Ordinary site clothing (e.g. full length protective overalls, safety boots, and if necessary, a site hat). The wearing of a half-face mask with a high efficiency particulate air filter of Class P2* (FFP2 or N95) is not required but is optional based on a risk assessment
High pressure spraying	Aerosol/spray	Half-face mask with a high efficiency particulate air filter of Class P2*, full-length waterproof overalls, water impervious gloves, safety boots, goggles or face shield, waterproof hair covering (e.g. site hat)
Chemical disinfection and mechanical cleaning of cooling towers	Aerosol/spray	Half-face piece mask with a high efficiency particulate air filter of Class P2* and additional filters to provide protection against biocides (e.g. chlorine), organic vapours, and acidic gases. Full-length waterproof overalls, water impervious gloves, safety boots, goggles or face shield, waterproof hair covering (e.g. site hat)

*European Standard for filters EN 149 (2001): Particulate Filters

7.4.2 Provision, training, use and maintenance of PPE

Employers must provide suitable PPE to each employee who may be exposed to risks. It is imperative to consider the following aspects in relation to PPE:

- Ensure that all PPE provided is compatible, and where appropriate can be used together
- Ensure that all PPE is used and maintained in accordance with the manufacturer's instructions
- Ensure that all PPE provided fits correctly and is used in the proper manner at all times. Respiratory protection equipment should be fit tested initially using a qualitative method. The employee should be trained to check the fit of the mask each time it is used
- Maintain, replace and/or clean all PPE as necessary and provide appropriate accommodation for employees to store PPE
- Provide adequate and appropriate training to enable employees using the PPE to be aware of the risk(s) the PPE will avoid or limit, and the actions required by the employee to maintain the PPE in a fit state

- Training should be provided to all new employees who may be exposed to risks when they start work
- Training should be provided to all employees who may be exposed to risks when new PPE is obtained or protocols are altered
- Training should be provided periodically to refresh employees' knowledge of the correct use and maintenance of PPE
- Written information and protocols for PPE use should be available in relevant languages, where appropriate
- Ensure that written or electronic records of all PPE training provided to employees are maintained.