8.4 Decorative fountains, water features and planters

Many modern buildings including hospitals and other healthcare facilities feature decorative fountains and planters in an effort to make patients and visitors more relaxed with their surroundings. These can be found both indoors and outdoors. The wet or damp surfaces of fountains and other water features or moist planter soils and trays readily become coated with a growing biofilm of microorganisms unless particularly well managed. This can act as a reservoir for their transmission and dispersion.141;142 Such features or activities near them may generate aerosols and thus pose a particular risk of infection by *Legionella* bacteria following aerosol inhalation.141;143-146

8.4.1 Hospitals and healthcare institutions

Hospitals and other healthcare institutions (e.g. day clinics, nursing homes, homes for the care of the elderly) should not contain decorative fountains or other water features that generate aerosols, as the risk of disease transmission to immunocompromised and debilitated patients outweighs their benefit. However, when they are present in hospitals and other healthcare institutions, features that generate aerosols should be well maintained and periodically cleaned and disinfected with an effective biocide. All wetted surfaces should be disinfected and descaled if necessary. This position is supported by a guideline issued by the CDC for Environmental Infection Control in Health-Care Facilities.147

Fountain and water feature maintenance should be integrated with the hospital/institution infection prevention and control and facilities maintenance programmes and should be tested periodically for the presence of *Legionella* bacteria. Fountain and water feature water recirculation systems and spray heads should be especially well maintained. Submerged lighting should be discouraged as this can contribute to heating of the water and result in water temperatures conducive to the growth and proliferation of *Legionella* bacteria.141 Maintenance of fountains and water features during the summer months is particularly important as elevated air and water temperatures will encourage the growth and proliferation of microorganisms.

Many hospitals and other healthcare institutions in Ireland already have water features that generate, or can generate, aerosols, mostly in public areas. If these cannot be maintained to minimise the risk of disease transmission as indicated above, they should be removed.

Decorative fountains and other water features should be excluded from hospitals and other healthcare institutions, at the design and planning stage.

*Small decorative water features*

In recent years, small decorative fountains and water features for use in buildings open to the public or for use in private homes have become very popular. These have been readily available to purchase in garden centres, DIY stores, etc. Recently, a small decorative fountain was shown to be the source of an outbreak of legionnaires’ disease in the USA.146 The authors believe that this was the first time that a small fountain with apparently limited aerosol-generating capability has been implicated as the source of a legionnaires’ disease outbreak. Investigations of future community cases of legionellosis should consider exposures to small indoor decorative fountains, such as those that might be present in private homes, restaurants, hotels, or other businesses, as potential sources of *Legionella*. Small decorative fountains should not be used in buildings open to the public unless they are particularly well maintained. The public should be discouraged from using small decorative fountains and water features in the home unless adequate maintenance and disinfection procedures are provided with the manufacturer’s instructions. In general, small water features should be drained and cleaned weekly and should be subject to manual dosing once a day with liquid chlorine to develop 3–5 ppm free chlorine (or equivalent) for one hour (observing adequate safety precautions).

8.4.2 Hotels, restaurants and other commercial buildings

Water features that generate, or can generate, aerosols are often present in public areas in hotels, conference centres and in other commercial buildings and institutions. All of the considerations outlined in the preceding section apply to fountains, water features, and misting devices in restaurant food display cabinets, etc. in these types of buildings. If they cannot be adequately maintained to minimise the risk of disease transmission as outlined in the preceding section, they should be removed.

8.4.3 Recommendations for maintenance of decorative fountains and water features

- Maintain cool water temperatures in decorative fountains and avoid submerged heat-generating lighting
- Use recirculated water. Recirculated water should be filtered and the filters examined, cleaned
and disinfected regularly. If water becomes cloudy or smelly (indicative of extensive microbial contamination), drain the feature completely, followed by thorough cleaning and disinfection. This is particularly important in dusty areas

- Avoid locating decorative fountains in high-risk areas including hospitals
- Ensure routine maintenance of decorative fountains and disinfection in accordance with the manufacturer’s instructions. Automatic control and feed of biocide is preferable. Maintain at least 0.5 ppm free chlorine or equivalent continuously
- When water treatment is inactive for three or more days (less in high temperatures or dirty conditions), features should be drained completely, cleaned and disinfected
- A maintenance log should be maintained for all ornamental water features i.e. free chlorine levels, water temperature, visual inspection for cloudy water and areas of slime, filter inspections, filter cleaning, filter changes, pump cleaning (every 3 months), water changes and routine cleaning
- Cleaning and maintenance of ornamental water features should form part of the overall risk management strategy for the premises concerned. A competent person(s) should be responsible for maintaining the feature. It should form part of the normal infection control environmental sampling programme.

8.5 Spa pools
8.5.1 Definition
This section on spa pools is based on and should be read with particular reference to the following document: Management of spa pools: controlling the risk of infection, published by the UK Health and Safety Executive and HPA, 2006. Available at http://www.hpa.org.uk/publications/2006/spa_pools/spa_pools.pdf.

A spa pool is a self-contained body of warm, agitated water designed for sitting or lying in up to the neck and not for swimming. It is not drained, cleaned or refilled after each user but after a number of users or a maximum period of time. It is filtered and chemically disinfected.

Spa pools contain water heated to 30°C - 40°C and have hydrotherapy jet circulation with or without air induction bubbles. They can be sited indoors or outdoors. Common terms for spa pools include hot spa, hot tub, whirlpool spa and portable spa. Jacuzzi is the registered trade name of a specific manufacturer and should not be mistaken for a generic name for spa pools.

Commercial spa pools
A commercial spa pool is an overflow/level deck spa pool installed in a commercial establishment or public building and generally used by people visiting the premises. Typical sites for commercial spa pools include hotels, health clubs, beauty salons, gymnasiums, sports centres and clubs, swimming pool complexes and holiday camps. A spa pool in such a location is considered commercial even if payment for use is not required.

Thalassotherapy pools use seawater or sea products e.g. seaweed, for health or beauty benefits. Many of the principles that apply to spa pools also apply to these.

A domestic spa pool installed in a hotel bedroom or holiday home should also be managed as a commercial spa pool. Similarly spa pools rented out to domestic dwellings for parties, etc. must also be considered commercial.

Domestic spa pool
A domestic spa pool or hot tub is a freeboard or overflow/level deck spa pool installed at a private residence for the use of the owner, family, and occasional invited guests.

Whirlpool baths
These are typically used in beauty parlours, health suites, hotels and dwellings. They are also being used in healthcare premises. Water within the bath is untreated and the bath is drained following each use. Whirlpool baths experience similar problems to spa pools with the formation of biofilm within the pipework system associated with the air and water booster jets, so regular disinfection is recommended. They are unsuitable for use in healthcare facilities as the risks outweigh the benefits.