INFORMATION SHEET – MANAGING LEGIONELLA RISKS ASSOCIATED WITH COLLEGE / SERVICE OWNED EQUIPMENT (Jan 2020)

This document provides guidance regarding the responsibilities and the practical steps to take to manage legionella risks associated with College / Professional Service (Service) 'owned' equipment and any related pipework that links to the water infrastructure.

WHAT IS LEGIONELLA?

Legionella pneumophila (and related bacteria) is a bacterium that can cause Legionnaires' disease a potentially fatal form of pneumonia. Initial symptoms include high fever, chills, head and muscle pain. On average there are 200 – 250 reported cases each year in the UK with roughly 12% of these becoming fatal.

HOW DO YOU GET LEGIONNAIRE'S DISEASE?

Infection is usually caused by breathing in small droplets of water contaminated by the bacteria. Although the disease can affect any body some people are at higher risk eg those over 45 years of age, smokers, heavy drinkers, those suffering from chronic respiratory or kidney disease, and people whose immune system is impaired. Person to person spread of the disease has not been documented.

HOW DOES LEGIONNAIRE'S DISEASE FORM?

The legionella bacteria are naturally present in the environment. However, if bacteria are allowed to ***thrive*** and grow the risk of Legionnaire's disease will increase.

WHAT CAUSES THE LEGIONELLA BACTERIA TO THRIVE?

The legionella bacteria survives low temperatures and thrive at temperatures between 20-45°C if the conditions are right, eg nutrients are present such as rust, sludge, scale, algae or other bacteria.

GENERAL COLLEGE / PROFESSIONAL SERVICE REPONSIBILITIES

Colleges and Services, have a specific obligation under the Control of Substances Hazardous to Health Regulations (COSHH) to assess the risk of exposure to substances hazardous to health with appropriate controls put in place to manage any risks. This includes biological agents such as legionella.

EXAMPLES OF COLLEGE / PROFESSIONAL SERVICE EQUIPMENT AND SYSTEMS

Humidifiers, water misters, water baths, vending machines (not plumbed in), water jacketed incubators, purification systems are common College / Service items that could pose a legionella risk.

SUSPECTED LEGIONELLA CASES

All suspected legionella cases must be reported to the Head of Health and Safety immediately who will notify the HSE if required. Action will then be decided on a case-by-case basis.

WHAT SHOULD WE DO NEXT?

You must first identify what equipment / systems are used that could pose a legionella risk. As with any hazard, you then need to assess the risk and eliminate it or control it. The following pages will help.

ASSESSING AND CONTROLLING LEGIONELLA RISK[1]

Responsibility for operating, maintaining and ensuring the safety of College and Service 'owned' equipment / system rests with the College / Service. This includes assessing any legionella risks associated with the equipment / system's operation.

As part of this process it is recommended risk assessments are discussed with PACS, Competent Person(s) so appropriate controls can be developed and introduced. PACS will also be able to source external advice on legionella risks associated with specialist or higher risk equipment, which they are unfamiliar with.

STEP 1: IDENTIFY LEGIONELLA RISKS	*Identify what 'owned' plant and equipment could pose a risk. Eg:*
	• Are conditions present which encourage the bacteria to thrive
	  ○ Temperature between 20-45°C
	  ○ Stagnating water
	  ○ Nutrient source e.g. rust, algae, sludge, scale
	• Will water droplets / aerosols be produced
	• Will anyone come into contact with the droplets / aerosols

STEP 2: NOTIFICATION	• Inform PACS of:
	  ○ Existing water spray / humidifier systems or systems linked to the water infrastructure (e.g. *a tap, mains water supply, rainwater tank/vessel*)
	  ○ Plans to purchase / install, modify or decommission / remove such systems
	• Never use such systems until confirmed a specialist Legionella Risk Assessment / Written Scheme is not required
	• If required, ensure staff are 'competent' to implement controls

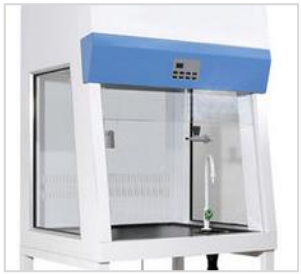
STEP 3: COMPETENT ADVICE & TECHNICAL KNOWLEDGE	Staff appointed to look after equipment identified as posing a legionella risk must be suitably competent to manage the risk If the equipment has the potential to create airborne water droplets or spray a competent person should be identified who will have the duty to maintain or ensure that item of equipment is maintained and who can confirm controls are operating and are sufficient In some cases competence will be achieved by appointing a ***technically aware*** person who understands how legionella risks arise and who is able to follow the manufacturer's advice on cleaning and operation. In other cases specific training and instruction may be required to ensure that the risks and controls are fully understood PACS can advise and assist with training

[1] Further guidance can be found in the Health and Safety Executive's L8: The Control of Legionella Bacteria in Water Systems Approved Code of Practice in 1991 (revised 2013) and HSG274: Legionnaires' Disease – Technical Guidance

The following provides general guidance on managing legionella risks:

STEP 4: PREVENT OR CONTROL THE RISK	*Simple steps to prevent or control legionella risk include:* • Controlling the release of water spray • Avoiding water temperatures and conditions that favour legionella • Keeping systems and water clean i.e. free of rust, algae, scale • Never allowing water to stagnate • Keeping pipework as short as possible • Treating water to either kill legionella or limit its ability to grow eg storing / regularly heating water above 60°C
STEP 5: INFORMATION & TRAINING	• Provide appropriate information and training on the risks and associated controls to any person, including contractors, visitors etc who will be operating or maintaining systems • Ensure relevant persons briefed in associated Risk Assessments • Display information as appropriate eg Safe Operating Procedures • Identify if the College / Service **technical person** requires more training to manage and / or maintain equipment identified as posing a legionella risk
STEP 6: RECORDS	*Maintain records of:* • Assessment of legionella risks • Specific training given to operate and maintain systems safely • Safe Operating Procedures • Local records eg flushing system • Formal maintenance, test and inspection records • Other records as required by the Legionella Risk Assessment / Written Scheme
STEP 7: MONITOR	• Monitor controls to ensure implemented and remain effective • Take action immediately if controls are not followed

COMMONLY FOUND SYSTEMS / EQUIPMENT THAT MAY POSE A LEGIONELLA RISK (this list is not exhaustive)

ITEM	ISSUES	ACTION	RECORD KEEPING / EVIDENCE
Water Baths 	• Contamination of contained water • Nutrient source eg rust, algae, lime scale • Aerosol production	• Empty water baths weekly **OR** • **If not emptied**, heat to >60^{o}C for 1 hour every month with water then disposed (without splashing) to drain • Thoroughly clean and de-scale before refilling. **Ensure** equipment is switched off when cleaned • Use deionized or distilled water to reduce lime scale which can harbour biofilms / legionella organisms	• Action taken e.g. emptying, heating • Capture risk / controls in general laboratory Risk Assessment
Fumehood Taps / Sinks 	• Contamination of contained water in ‘dead leg’ elements • Nutrient source eg lime scale • Aerosol production	• If used infrequently flush through for 2 minutes at least once a month	• Action taken e.g. flushing • Formal fumehood maintenance / test / inspection records • Capture risk / controls in general laboratory Risk Assessment
Hose Reels 	• Contamination of contained water in ‘dead leg’ elements • Nutrient source eg rust, algae, lime scale • Aerosol production, especially when using spray heads	• If used infrequently flush through for 2 minutes at least once a month • Keep hose nozzles / spray attachments clean (Note: all hoses must be affixed to a tap with a non-return valve or similar back-syphon prevention arrangement)	• Action taken e.g. flushing

ITEM	ISSUES	ACTION	RECORD KEEPING
Water Purification Systems 	• Systems usually directly plumbed into the water system so minimal risk • Possibility of waste water arising during regeneration of resins being contaminated	• **ALWAYS** contact PACS before purchasing / installing / commissioning / disposing of such systems • **Inform** those involved in routine regeneration of resins in the equipment of potential risks • **Ensure** disposal of waste water is effected without splashing or aerosol generation	• Capture risk / controls in equipment Risk Assessment
Bench Sinks / Hand Wash Sinks 	• Contamination of contained water in 'dead leg' elements • Nutrient source eg lime scale • Aerosol production	• If used infrequently flush through for 2 minutes at least once a month • Keep tap attachments eg flexible hoses clean and 'short' of the sink base (so that there is no risk of back syphonage into the water system)	• Capture risk / controls in general laboratory Risk Assessment
Water Jacketed Incubators 	• Topping up of the water is usually the only routine operation undertaken, when risk of exposure is minimal • **Risk increases** if the water jacket has to be drained	• Drain the jacket in such a way to prevent splashing and generation of aerosols i.e. flexible hose attached to the drain port and directed into a sink • Flush jacket through with deionized water and refill with deionized or distilled water which reduces the amount of lime scale which harbours bacteria	• Action taken e.g emptying, filling • Capture risk / controls in general laboratory Risk Assessment

ITEM	ISSUES	ACTION	RECORD KEEPING
Water Cooled Kit (recirculating) 	• Recirculating water • Nutrient source eg rust, lime scale • Aerosol production	• If used infrequently flush through for 2 minutes at least once a month • Keep equipment clean of lime scale etc • **Ensure** cleaning operations are carried out safely ie equipment is isolated before cleaning • Ensure equipment PAT Tested at a suitable frequency	• Action taken e.g flushing • Formal maintenance / test / inspection records • Training / instruction provided in how to safely operate kit • Capture risk / controls in equipment Risk Assessment with users instructed in this
Water Spray / Humidifiers 	• Contamination of contained water in 'dead leg' elements • Nutrient source eg rust, algae, lime scale • Aerosol production	• **ALWAYS** contact PACS before purchasing / installing / commissioning / disposing of such systems • Never use system until a Legionella Risk Assessment / Written Scheme is prepared • Implement controls as outlined in the Legionella Risk Assessment / Written Scheme • Instruct all operators in the controls • Nominate a '**competent person**' to oversee maintenance and check controls are in place	• Keep records, as specified by the Legionella Risk Assessment / Written Scheme • Formal maintenance / test / inspection records • Training / instruction provided regarding operation of system • Capture risk / controls in equipment Risk Assessment with users instructed in this
Wave Flume Machines 	• Possible contamination of contained water and 'dead legs' if used infrequently • Nutrient source eg rust, algae, lime scale • Aerosol production	• **ALWAYS** contact PACS before purchasing / installing / commissioning / disposing of such systems • Drain system between use if possible • If the above is not possible run at least once a month	• Action taken eg flushing • Training / instruction provided regarding operation of system • Capture risk / controls in equipment Risk Assessment with users instructed in this

ITEM	ISSUES	ACTION	RECORD KEEPING
Vending Machines (not plumed in) 	• Possible contamination of contained water and ‘dead legs’ if used infrequently • Possible nutrient source eg lime scale • Aerosol production	• Confirm with the supplier that routine cleaning of integral water systems is included • Ensure above is covered in any contract agreements	• Supplier actions eg maintenance, fault reporting, scheduled replacements
Growth Chamber / Unit 	• Potential fire risk if pump fails to distribute water spray across heating element leading to overheating • Possible nutrient source eg lime scale, rust • Aerosol production	• Only purchase equipment that has built in alarm / cut-off systems to warn if overheating • Implement controls as outlined in the Risk Assessment • Only trained operators instructed in the controls and associated Risk Assessment to operate chamber / unit • Ensure equipment PAT Tested at a suitable frequency • Nominate a member of staff to oversee maintenance, checks of safety critical devices and ensure controls are in place and followed • Keep equipment clean of lime scale etc • **Ensure** cleaning operations are carried out safely ie equipment is isolated before cleaning	• Action taken eg cleaning • Formal maintenance / test / inspection records • Training / instruction provided regarding operation of system • Capture risk / controls in equipment Risk Assessment with users instructed in this