University Hospitals of North Midlands NHS
NHS Trust

Policy No. (EF04)

Trust Policy for the Control of Hazardous Micro-Organisms in Water Supplies

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Trust Contact:	**Senior Estates Operations manager**
Executive Lead:	**Director of Corporate Services**

Version Control Schedule

Final Version	Issue Date	Comments
1	December 2010	
2	November 2013	
3	August 2015	

University Hospitals of North Midlands NHS
NHS Trust

Statement on Trust Policies to be included in all policies

Staff Side and Trade Unions
The University Hospitals of North Midlands NHS Trust is committed to ensuring that, as far as is reasonably practicable, the way in which we provide services to the public and the way in which we treat our staff reflects their individual needs and does not discriminate against individuals or groups on any grounds.

Equality and Diversity
The University Hospitals of North Midlands aims to promote equality and diversity and value the benefits this brings. It is our aim to ensure that all staff feel valued and have a fair and equitable quality of working life.

Equality Impact Assessment
The organisation aims to design and implement services, policies and measures that meet the diverse needs of our service, population and workforce, ensuring that none are placed at a disadvantage over others. The Equality Impact Assessment tool is designed to help you consider the needs and assess the impact of your policy.

Information Governance
Any Trust policy which impacts on or involves the use and disclosure of personal information (patient or employee) must make reference to and ensure that the content of the policy is comparable with the relevant statutory or legal requirement and ethical standards

Data Protection Bill, General Data Protection Regulations (GDPR) and the NHS Code of Confidentiality
GDPR replaces the EU Data Protection Directive of 1995 and supersedes the law of member states that were developed in compliance with the Data Protection Directive 95/45/EC. Its purpose is to protect the "right and freedom" of natural persons (i.e. livening individuals) and to ensure that personal data is not processed without their knowledge, and, wherever possible, that it is processed with their consent.

Processing includes holding, obtaining, recording, using and disclosing of information and applies to all forms of media, including paper and images. It applies to confidential patient information but is far wider in its scope, e.g. it also covers personal records

Whiles GDPR applies to both patient and employee information, the Confidentiality Code of Practice (COP) applies only to patient information. The COP incorporates, the requirements of GDPR and other relevant legislations together with the recommendations of the Caldicott report and medical ethics considerations, in some cases extending statutory requirements and provides detailed specific guidance.

Freedom of Information Act 2000
The Freedom of Information Act 2000 (FOIA) is an Act which makes legal provision and creates a legal gateway and timetable for the disclosure, to the public, of the **majority** of corporate information held (but not necessarily created) by this Trust. The Trust has a legal responsibility to proactively provide a large amount of information to the public and to pro-actively respond to specific requests for information. Information will not be disclosed when the Trust can claim legal exemption. Any non-disclosure must be conveyed in writing; quoting the relevant exemption together with signposting to internal and external methods of compliant. Locally, guidance on the DPA, FOIA and COP can be obtained from the Information Governance Manager or the Caldicott Guardian.

Mental Capacity Act

Any Trust policy which may affect a person who may lack capacity should comply with the requirements of the Mental Capacity Act 2005 (MCA)

The MCA and its associated Code of Practice provides the framework for making decisions on behalf of individuals who lack the mental capacity to do these acts or make these decisions for themselves. Everyone working with and/or caring for adults who lack capacity, whether they are dealing with everyday matters or life-changing events in the lives of people who lack capacity must comply with the Act.

In a day to day context mental capacity includes making decisions or taking actions affecting daily life – when to get up, what to wear, what to eat etc. In a legal context it refers to a person's ability to do something, including making a decision, which may have legal consequences for the person lacking capacity, or for other people.

The Code provides guidance to all those working with and/or caring for adults who lack capacity, including family members, professionals and carers. It describes their responsibilities when acting or making decisions with, or on behalf of, individuals who lack the capacity to do this for themselves. In particular, it focuses on those who will have a duty of care to a person lacking capacity and explains how the legal rules set out in the Act will work in practice.

The Health Act: Code of Practice for the Prevention and Control of Health Care Associated Infections
The purpose of the Code is to help NHS bodies plan and implement how they can prevent and control HCAI. It sets out criteria by which managers of NHS organisations are to ensure that patients are cared for in a clean, safe environment, where the risk of HCAI is kept as low as possible. Failure to observe the Code may either result in an Improvement Notice being issued by the Care Quality Commission, or in the Trust being reported for significant failings and placed on 'Special Measures'.

The Code relates to healthcare provided by all NHS bodies. Each NHS body is expected to have systems in place sufficient to comply with the relevant provisions of the Code, so as to minimise the risk of HCAI to patients, staff and visitors.
The Trust Board must have an agreement outlining its collective responsibility for minimising the risks of infection and the general means by which it prevents and controls such risks.

Effective prevention and control of HCAI must be embedded into everyday practice and applied consistently by all staff.

Human Rights
The Trust is committed to the principles contained in the Human Rights Act. We aim to ensure that our employment policies protect the rights and interests of our staff and ensure that they are treated in a fair, dignified and equitable way when employed at the Trust.

Sustainable Development
The University Hospitals of North Midlands NHS Trust (UHNM) is committed to demonstrating leadership in sustainability and has a Trust Board approved Sustainable Development Management Plan (SDMP): Our 2020 Vision: Our Sustainable Future which sets out the route to developing a world-class healthcare system that is financially, socially and environmentally sustainable.

There are three 'Key Priorities' to aim for by 2020. With the help of employees, key partners and other stakeholders the trust will embed opportunities to:

1. Reduce our environmental impact, associated carbon emissions and benefit from a healthier environment;
2. Improve the resilience of our services and built environment as a result of severe environmental and climatic changes;
3. Embed sustainable models of care and support our local community to be well-connected, healthy, resilient, independent and managing their lives in a positive way.

The SWITCH campaign is designed to achieve these priorities. It is relevant to all departments and all members of staff. The focus is on using resources sustainably in order to provide better patient care, improve health and our working environment.

CONTENTS

1 INTRODUCTION

Background:

Legionella

The legionella bacterium is common and survives and proliferates in water. It is widespread in natural and fresh water including rivers, lakes, streams and ponds and may also be found in wet soil.

Legionella pneumophila is the most common species causing Legionnaires Disease/Legionella pneumonia, but other Legionella species may also cause disease in humans

The mortality rate of Legionnaires Disease/Legionella pneumonia is approximately 10-15%, despite optimal treatment

Water temperatures in the range of 20c to 45c favour growth of the organism. It is uncommon to find proliferation below 20c, and it does not survive above 60c.

Legionella issues can be systemic or localised but are rarely as result of retrograde contamination by the users but more a result of inappropriate system design and modifications, poor maintenance and low usage.

The route of infection is through inhalation into the lungs of aerosol sized droplets of water carrying the legionellae bacteria. Aerosols containing such droplets may be generated by running taps, showers, draining of water vessels such as tanks and calorifiers and other heat exchangers, hosing operations and during the operation of cooling towers and evaporative condensers.

Pseudomonas aeruginosa and other opportunistic pathogens.

The Pseudomonas aeruginosa bacteria is a gram negative opportunistic pathogen that thrives in water systems and is particularly active at the outlet.

Systemic contamination is less common and retrospective contamination of outlets by users is considered the greater risk.

The route of infection is by entering the blood stream via an open wound, inappropriately dressed lines or via passage through the skin in Neonatal patients, or by inhalation, particularly in patients receiving mechanical ventilation.

Management of Other opportunistic pathogens are as per Legionella control good practice and guidance and by specific risk assessment / direction of the WSG.

These opportunistic pathogens present most risk to those patients that are immuno-compromised. Infection or colonisation from these pathogens can be reduced by appropriate training, correct cleaning procedures, considered and robust maintenance of hot & cold water systems and monitoring of these.

2 POLICY STATEMENT

The Control of Legionellae

Statement:

The purpose of this policy statement is to define the Roles and Responsibilities of all parties involved, to define the control of hazardous micro-organisms and maintain a wholesome water supply for the University Hospital of North Midlands NHS Trust property and sites.

The policy mainly refers to the control of Legionella and Pseudomonas aeruginosa and it is accepted that these control methods will largely apply to all Hazardous Micro organisms in water systems.

3 SCOPE

The scope of this policy statement affects all Members of Staff

This policy applies to the management, maintenance and control of all Trust property water systems and other systems able to cause Legionellosis and other conditions relating to infected water. This will include, hot and cold water systems, potable water systems, heating systems and all storage related to the supply of the systems. Consideration is also given to Medical engineering equipment, Air conditioning systems, Hydrotherapy pools and Vehicle windscreen spray systems although these have service specific policies that address the risk directly.

4 DEFINITIONS

Legionella	Gram negative bacterium that thrives in heating, water and air conditioning systems and can cause legionaires disease
Pseudomonas aeruginosa Other related pathogens	Gram-negative bacterium,commonly found in wet or moist environments, particularly outlet ends and tap internals. Stenotrophomonas maltophilia, Burkholderia cepacia and atypical mycobacteria.

L8 HSG 274 part 2	HSE Approved Code of Practice. Part 2: the control of Legionella Bacteria in Hot and Cold water systems. March 2014
HTM 04-01	Hospital Technical Memorandum, The Control of Legionella, hygiene, safe hot water, cold water and drinking water
Addendum to HTM 04-01 – Pseudomonas aeruginosa – Advice for Augmented care areas	Addendum to HTM04 specific to Pseudomonas Aeruginosa. Published March 2013. Pseudomonas aeruginosa – Advice for Augmented Care Areas.
Water Systems	These will include hot and cold water systems, heating systems, potable water systems, Vehicle Windscreen washer systems, drinks dispensing equipment and condensate drains in air conditioning systems
Responsible Person	Person described in HTM 04-01 to lead on matters of controlling hazardous micro-organisms in water and possessing adequate knowledge and experience to ensure the quality of water.
Thermal Regime	The use of temperature control to maintain water systems outside of the growth band for Legionella in water supplies.
Chemical Regime	The use of chemicals to prevent and control the growth of Legionella in water systems.
Water Safety Group (WSG)	The WSG is a multi-disciplinary group that includes but is not limited to Consultant Microbiologist/Infection Control Doctor, Estates Management, Capital Planning, Infection Prevention and Control Team, Independent Authorising Engineer,Trust Domestic services, Clinical Representatives, PFi hard and Soft FM team representatives, CPM team.

Legionella Risk Assessment	A risk assessment carried out by a suitable trained & qualified assessor to meet the requirements of BS8580:2010
Written Scheme	Operational Document developed and maintained to meet the requirements laid out in L8 and HSG274.

5 Roles and Responsibilities

Management Accountability.

Duty Holder - The Chief Executive has overall responsibility for all aspects of the quality of water supplies within her/his organisation.

Nominated person – Director of Corporate services / Estates -will be responsible for all aspects of the quality of water supplies within her / his organisation.

Responsible Person.- A nominated person possessing adequate professional knowledge and with appropriate training, should be nominated in writing by the Director of Corporate Services to devise and manage the necessary procedures for the prevention hazardous micro-organisms in water. The named person will be a member of the Estates Department and be required to liaise closely with other professionals in various disciplines. This person/s will co-ordinate and ensure a consistent approach to the prevention and control of hazardous micro-organisms in water in all estates operations. In addition, the person/s should possess a thorough knowledge of the control of hazardous micro-organisms in water and will be suitably trained and experienced.

Appointed Authorised Person- A person appointed by the Responsible person and tasked with overseeing the day to day management of the Legionella / Water Hygiene programme. The AP should possess appropriate professional and specialist knowledge including approved training in the management of the control of hazardous microorganisms in water systems.

Competent Persons – Persons appointed by the Responsible person / Authorised person who possess sufficient knowledge and have appropriate training to complete specific tasks to meet the requirements of the Legionella management programme. These can be Estates personnel or specialist contractors appointed under the direction of the RP / AP

Departmental Responsible Persons - Matrons, Sisters and Department managers should ensure that all water outlets (wash basins, showers, baths and toilets) within their department are used frequently and that those outlets which are taken out of service temporarily are operated at least daily in clinical areas and twice weekly in non-clinical areas. All Outlets in augmented care areas should be flushed daily for at least 1 minute. All outlets identified as low use and not required long term should be removed by the Estates department at the written request of the department manager

Please refer to “Water flushing to reduce risk of a Hospital acquired water borne infection” SOP in Appendix 1.

Water Safety Group - The Water Safety Group should be a multi-disciplinary steering group chaired by the Infection Control Lead that meets at least quarterly and will be collectively responsible the production of the policy and management procedures for the control of hazardous micro-organisms in water. Similarly, the team has a key role in the formulation of the plans for its implementation.

Duty Holder - Chief Executive

Nominated Person – Director of Corporate Services / Estates

Deputy Nominated Person – Deputy Director of Corporate Services

Authorising Engineer – Specialist Independent appointed by the Nominated person.

Responsible person – Water

Senior Estates manager (Royal Stoke Site)

Senior Estates manager – (County Hospital site)

Authorised Person – Water

Estates Maintenance Manager - Compliance (Estates Lead – Royal Stoke Site)

Special Services manager (deputy Lead Royal Stoke Site)

Senior project manager – Capital Planning UHNM across sites)

Estates manager (Estates Lead – County Hospital Site)

TBC by County Estates Team (Estates deputy Lead – County hospital site)

Infection Control Lead

Infection control deputy lead

Competent persons – Water

As per competence section of the Written scheme.

6 Education/Training and Plan for Implementation

Training:

All Nominated and Appointed Persons within the management structure will complete initial approved training prior to appointment and follow up refresher training as recommended in HTM04-01.

All persons involved in the maintenance of Water Hygiene will attend a Legionella Awareness training course and follow up refresher training every three years.

It is the responsibility of the Responsible / Authorised Person, WSG members and departmental Managers to ensure that all persons that fall under their responsibility, are involved in the management of water hygiene, attend initial and refresher courses and training records are kept up to date.

Competent Persons will be continually assessed by the Responsible / Appointed Persons. Updates in legislation, guidance, policy and changes in procedures will be communicated by the WSG members to their respected teams in the form of Standard Operating Procedures and Tool box talks and attendance formally recorded.

All training records will be updated to the employee's ESR file and managed by the Departmental Responsible Person.

7 Monitoring and Review Arrangements

Review and Monitoring methods

WSG Meetings – The multi-disciplinary WSG will meet at least quarterly or as required. A regular Review of the Terms of Reference and Quorate requirements will be actioned by the WSG chair

Annual Audit – The Trusts management of Legionella will be audited on an annual basis by the Trust's Appointed Authorising Engineer. The Audit report will be disseminated to all members of the WSG. The Audit report will contain an Action plan for discussion and delegation at the following WSG meeting.

Two yearly Risk Assessment – The Trust will appoint a specialist to carry out a regular Legionella risk assessment of water and other systems detailed in L8/ HSG274 and HTM04-1 to meet BS8580:2010

Augmented care areas – The Trust will appoint a specialist to carry out an initial risk assessment specific to Pseudomonas aeruginosa and as detailed in the Addendum to HTM04 – Pseudomonas aeruginosa – Advice for Augmented Care Areas.

Policy Review – a regular review, at least 3 yearly, of the Policy Document will be carried out by the WSG under the direction of the WSG Chair and led by the Trust's Appointed Responsible Person.

8 Legionella Risk Assessments to BS8580:2010

At each Trust site a Risk Assessment shall be required for each water system which will identify and assess but not be limited to:

The risk of hazardous micro-organisms in water and other systems with particular consideration given to building occupants and identifying those most susceptible to risk of Legionella infection.

An engineering assessment of the water system which will identify any incorrect installation practice such as dead legs or fittings not approved by the Water Regulations Advisory Scheme (WRAS).

An assessment of Storage / usage / Turnover.

The risk of scalding to persons using the hot water system or in contact with hot pipes etc.

A detailed system specific Legionella control and management programme

Task specific Operational Procedures (SOPs)

Start up and handover documentation.

Evidence via log book – electronic or paper type.

A list of accepted derogations, qualified and signed by the WSG Quorate The Risk Assessment shall be completed by a competent person as assessed by the Trust's Responsible person / Authorised person to meet the requirements of HTM 04-01, ACOP L8 and BS 8580:2010 – Risk Assessments for Legionella Control – Code of Practice. It should be reviewed every two years or if there is a change to the building water systems, occupancy or any other consideration for reassessment of Risk, at which time necessary changes should be implemented. Whenever a risk is identified, all reasonably practicable precautionary measures should be applied.

Any notable changes to water systems must be re assessed by the Risk assessor under direction of the project manager for the works and notification of the changes added to the Risk assessment documentation and System Specific log book. Minor modifications must be notified to the appropriate Authorised person who will update the system log book accordingly.

A minor modification would be the removal of an outlet or minor remodelling of a single room and associated pipework / outlet modifications.

Anything greater than this would be considered a `notable change'.

The Risk Assessment should Identify & summarise overall risk and detail actions for Risk removal, reduction or safe management in compliance with HTM 04-01 and associated addendum for Pseudomonas in Augmented Care Areas, HSE ACOP L8, HSG 274 parts 1,2 & 3. The RA will areas identify areas where good practice will increase the efficacy of the Legionella Control programme.

This will require:

Tracing all pipework – as seen as reasonably practicable.

Measuring the time taken to achieve recommended temperatures as hot and cold water outlets.

Measuring temperatures at all cisterns, heat exchangers, humidifiers and other strategic points to check compliance.

Assess storage levels of hot and cold water against current usage.

Checking layout and arrangements of cisterns, heat exchangers, pumps, humidifiers, and other water systems which may present a Micro-organism hazard.

Identifying little used outlets and associated pipework which could be removed.

Develop schemes for risk minimisation and control in order of priority, having considered cost, risk and difficulty.

List all buildings in priority order of non-compliance and potential risk.

Devise and agree management programme for the minimisation of risks identified in the above point. This should be an action plan identifying resources and time scales.

Manage the programme described in the above point and identify compliance failures for remedial action.

Review the programme at yearly intervals to record progress in implementing the programme. All changes to the water systems and functional content should be recorded and evaluated.

On completion of the Risk Assessments the Trust's Authorised Persons for each site will make available the Risk Assessments to the WSG and deliver a summary of the RA findings and associated action plan at the next available WSG meeting.

The action plan will be sent out to all key members of the WSG for comments and feedback.

Normal operating conditions:

The UHNM has made the decision that it will control legionellae in its water systems by the use of the thermal regime (the principle means see below) and supported in clinical buildings by a chemical regime using Chlorine Dioxide. This chemical regime will introduce chlorine dioxide to water systems and be within the range of 0.2 to a maximum of 0.5 parts per million (ppm) and will be monitored monthly to ensure that it is effectively controlling hazardous micro-organisms in the water. In the Maternity Hospital where neonates may be exposed to this chemical regime then the use of terminal filtration will be employed to remove or substantially remove the products of chlorine from potable water outlets.

It will be the policy of the Estates Departments to keep under review other means of controlling hazardous micro-organisms supplementary to the use of the thermal regime which will be adopted as the principle means of control. Where alternatives to chlorine dioxide are proposed these will be approved for use by the Water quality Group. Localised Chlorine Dioxide generators are the preferred method of dosing.

The inlet, outlet and surface water temperatures of cisterns and cold water storage tanks should be less than 20c. Tank temperature should be checked during both hot and cold weather conditions at various water depths, including inlet and outlet.

Calorifier and storage vessels contents temperatures should be maintained at 60c as a minimum, boilers should not fall below 60c. A minimum return temperature of 50c (55Deg C preferable in clinical buildings) should be achieved to ensure that all internal surfaces of the hot water supply pipework is attaining pasteurisation temperature.

The testing of temperatures at hot and cold draw-off points at sinks and hand wash basins, baths etc, should be carried out regularly. A hot water point should reach a steady 50c – 60c within one minute at full flow, and cold water draw-off points should be below 20c within two minutes. The results shall be recorded.

Blended outlet temperatures of thermostatic mixing valves should be 43c +/- 2c. These valves are required to be installed in all patient and public areas where generally more susceptible persons are at risk of scalding.

Outlet temperatures of bidets should be 40c +/- 2c (if applicable).

Where practicable, temperature recording devices integral to the Building Management System should monitor constantly and print out alarms where temperatures either exceed or fall below the prescribed level

Precautionary measures and treatments, monitoring results and remedial work should be logged and signed or initialled by the person who carried out the work.

Sufficient information shall be recorded to show what measures have been taken and how they have been monitored.

Water sampling will be carried out under the control of the Consultant Microbiologist and agreed by the WSG.

This will involve the testing at annual frequency or other specifically prescribed by the IPCD (water quality) in high risk areas and a randomly sampled other clinical areas. The high risk areas will be agreed by the IPCD and the Senior Estates Operations manager.

Water services shall be routinely checked and inspected as part of a Planned Preventive Maintenance (PPM) system and should be well maintained. The frequency of inspections and maintenance will depend on the system and the risk it presents. For most systems in operation it will be sufficient to inspect and check the following:

- Water temperatures at calorifiers or storage vessels (monthly).
- Conditions of tanks – annually or more frequently if there is a reason for suspect contamination. A safe system of work needs to be implemented to protect maintenance staff and system hygiene.
- Calorifiers base drains flushed quarterly to minimise sludge accumulation, and run until a temperature of at least 50c is attained and held for 2 minutes.
- Conditions of any on-line water treatment system if installed. This should be checked in accordance with the manufacturer's instructions.
- Pipework system for hot and cold systems should use a cross flow design through the storage vessel.

If the inspection reveals contamination, damage or malfunction, remedial action should be taken as soon as possible.

During temporary closure of wards or departments, hot and cold water service systems must be regularly drained and flushed. This should include the opening of all taps and running of shower units for a minimum of 3 minutes, and the flushing of WCs on a twice weekly cycle. Note for ward closures this will be an Estates Department responsibility, for partial closures or for sinks/wash basins baths or showers which are infrequently used it will be the responsibility of the Ward Manager (see appendix 1).

Dismantle, clean and de-scale shower heads and hoses quarterly or as deemed necessary.

Water systems shall be dosed with chemicals/biocides to prevent the development of legionellae bacteria. These systems will be proprietary manufactured Chlorine Dioxide systems.

Any system adopted must be listed in the current edition of the Water Fittings and Materials Directory (WFMD).

Air conditioning and ventilation systems have been shown to provide a route for distributing contaminated air throughout a building. Particular attention should be paid to the humidification process. Ductwork shall be examined for evidence of “ponding”, that is where water has collected in sections of the ducting. If evidence is apparent then modifications to the ductwork shall be carried out.

At present, All humidification equipment serving Air Handing units are not in use, disconnected and cold feeds stripped back. This will be reviewed periodically.

Humidification in Air conditioning will not be used without prior Risk Assessment by competent persons and agreed by the Trust’s WSG.

Water Softeners - Periodic disinfection must be undertaken every six months in accordance with water softener manufacturer’s recommendations.

Protection of Maintenance Personnel - The disinfection procedures indicated for storage tanks, calorifiers and water systems are procedures designed to minimise the risk to staff and others who may come into contact with water, which may have been contaminated with Legionella Pneumophila. In all instances of draining, water should be drained to avoid an aerosol.

Getting Help

Additional information and guidance on the contents of this Policy can be obtained from the following sources:

- Associate Director of Estates & Facilities
- Senior Estates Manager
- Infection Control Doctor

Deviations from normal - Where there are deviations in temperature, or any items in this procedure, or major changes in the water system, then consultation should take place with the infection control doctor. In exceptional circumstances in may be necessary following this consultation to convene the Water Safety Group.

9 REFERENCES

Current water bylaws of local authority.BS 8580 water Quality – Risk Assessments for Legionella Control – Code of Practice

HSE Document L8 ACOP – The control of Legionella Bacteria in Water systems

HSE Document Guidance HSG274 – Part 1,2 & 3.

BS 8558 – 1987 British Standards Specification for Design, Installation, Testing and Maintenance of service supply of water.

Control of Legionellae in Health Care Premises, Code of Practice- ISBN-0- 11-321208-9.

Approved Code of Practice- ISBN-0-11885659-6

Legionnaires Disease Approved Code of Practice and Guidance– ISBN 0 7176 1772 6

Control of Substances Hazardous to Health (COSHH).

Management of Health and Safety Statement 2.1

HTM 04-01.

Addendum to HTM04-01 – Pseudomonas in Augmented Care Areas

Health and Safety at Work Act 1974

Public Health (Infectious Diseases) Regulations 1988.

Water Supply Regulations 1989 (Water Quality)

Food Act 1990 (as amended)

10 Appendices

APPENDIX 1 SOP. Water flushing to reduce risk of a Hospital acquired waterborne infection.

University Hospitals of North Midlands NHS Trust

Everyone Improving Quality

STANDARD OPERATING PROCEDURE (SOP)		
Title	Water Flushing to reduce risk of a Hospital acquired Waterborne	
Purpose	To provide a safe environment for all patients and staff using water outlets within the UHNM	
Scope	This SOP applies to all water outlets.	
Definition	A water outlet is defined as any device that discharges water in taps on sinks, baths, wash hand basins, toilets, bidets, showers and any other device or machine that is plumbed into the water system.	
Instruction		Method/Person Responsible
1.	Water Flushing status Ward/Department Managers are responsible for identifying any unused, or infrequently used water outlets in their area including all side room outlets and subjecting them to a water flushing programme.	Matron/Ward/Department Managers to ensure that all staff in their area are aware of this SOP and the need to flush/run any unused or infrequently used water outlets.
2.	Water Flushing programme The ward/department Manager to ensure that any unused or infrequently used water outlets are run/flushed at least every other day. This programme must be recorded on the Water Flushing Status report. Augmented care areas, Flush all taps that are used infrequently at least daily for 1	Ward/department Manager to ensure that taps/showers that are unused or infrequently used are run for at least 3 minutes in every 2 to 3 days. Any unused or infrequently used toilets are flushed twice to refresh the water in the cistern and replace that in the pipework leading to them and this must be carried out at least twice a week.

	minute.	
3.	Water Flushing Status report Ward/Department Manager to identify and record any areas with unused or infrequently used water outlets on the "Water Flushing Status report". This report must be completed every other day. .	Ward/department Manager to ensure that the water flushing status report is completed every other day. The room/door number of any area in which a water outlet is not or infrequently used is recorded on the Status report sheet. In the event that all the water outlets in your area are being used then the person carrying out this assessment must sign and date the Water Flushing status report. The Water Flushing Status report sheets are to be kept in the ward/department and must be available for inspection/audit and to provide assurance that this SOP is in place.
4.	Water outlets which are not required. Basins, showers, taps etc which are not required should be identified to Estates department who will assess the need to isolate drain and remove them and their associated pipework so as not to leave any branches or deadlegs which reduce flow or create stagnation.	Ward/department Manager to keep a record of when reported to Estates. Estates to keep a record of their assessment and actions.
5.	The Water Flushing Status report The Water Flushing Status report sheet is attached to this SOP and will be an appendix to EF03, Trust Policy for the Control of Legionella (currently under review) and to be renamed Trust policy on water safety.	Estates Department

APPENDIX 2. Areas of high risk (Legionella and Pseudomonas testing)

AREA	Requires Legionella Test	Requires Pseudomonas Test
Ward 117 Infectious Diseases	YES	NO
Ward 222 NIVU	YES	YES
Critical Care Unit	YES	YES
Paediatric Intensive Care Unit	YES	YES
Paediatric Oncology Day Unit (located between Ward 215 & ward 216)	YES	NO
Paediatric ward 217	YES	YES
Paediatric Out-Patients	YES	NO
Neonatal Intensive Care Unit	NO	YES
Neonatal High Dependency Unit	NO	YES
Special Care Baby Unit	NO	YES
Special Surgical Care Unit	YES	YES
Ward 201 Oncology In-Patients	YES	YES
Ward 202 Haematology / Oncology Day Patients.	YES	NO
Renal Day Patients	YES	NO
Renal In-Patients	YES	YES

APPENDIX 3 Water safety Plan (WSP) requirements:

Appoint Infection Prevention Doctor (water Quality) and Authorised Persons (water quality).

Produce record of drawings and schematics for all water systems. The drawing/schematics should show:

- Layout and arrangement of all heat exchangers and pumps.
- Layout and arrangement of all cisterns & humidifiers.
- All other water systems, such as hydrotherapy pools, which may present hazardous micro-organisms in water condition.
- Dead legs and blind ends, with lengths and diameter indicated.
- Operation and check points for cross referencing with operational instructions and temperature records.

There shall also be adequate documentation which details the engineering design intent and maintenance and operational procedures.

Identify work needed to be carried out for compliance with HTM 04-01, ACOP L8 and HTM 04-01 Addendum Pseudomonas aeruginosa, Advice for augmented care.

This will require:

- Tracing all pipework.
- Measuring the time taken to achieve recommended temperatures as hot and cold water outlets.
- Measuring temperatures at all cisterns, heat exchangers, humidifiers and other strategic points to check compliance.
- Checking layout and arrangements of cisterns, heat exchangers, pumps, humidifiers, and other water systems which may present a Micro-organism hazard.
- Identifying little used outlets and associated pipework which could be removed.
- Develop schemes for risk minimisation and control in order of priority, having considered cost, risk and difficulty.
- List all buildings in priority order of non-compliance and potential risk.
- Devise and agree management programme for the minimisation of risks identified in the above point. This should be an action plan identifying resources and time scales.
- Manage the programme described in the above point and identify compliance failures for remedial action.
- Review the programme at yearly intervals to record progress in implementing the programme. All changes to the water systems and functional content should be recorded and evaluated.

APPENDIX 4 Additional Information regarding water systems

Calorifier and storage vessels contents temperatures should be maintained at 60c as a minimum, boilers should not fall below 60c. A minimum return temperature of 52c should be achieved to ensure that all internal surfaces of the hot water supply pipework is attaining pasteurisation temperature.

The testing of temperatures at hot and cold draw-off points at sinks and hand wash basins, baths etc. should be carried out regularly. A hot water point should reach a steady 50c – 60c within one minute at full flow, and cold water draw-off points should be below 20c within two minutes. The results shall be recorded.

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Outlet temperatures of bidets should be 40c +/- 2c (if applicable).

Where practicable, temperature recording devices integral to the Building Management System should monitor constantly and print out alarms where temperatures either exceed or fall below the prescribed level

To ensure that precautions continue to be carried out and that adequate information is available for checking what is done in practice, a record should be kept showing the information specified in the Approved Code of Practice or HTM04-01. This will be maintained by the Authorised persons.

Precautionary measures and treatments, monitoring results and remedial work should be logged and signed or initialled by the person who carried out the work.

Sufficient information shall be recorded to show what measures have been taken and how they have been monitored.

Water sampling will be carried out under the control of the Consultant Microbiologist, i.e. the Infection Control Doctor (water quality).

For Legionella;

This will involve testing at annual frequency or other specifically prescribed by the ICD (water quality) in high risk areas and a randomly sampled area other than the specified high risk areas. The high risk areas will be agreed by the WSG (see Appendix 2).

For Pseudomonas;

The testing requirements noted in HTM 04-01 addendum Pseudomonas Aeruginosa will be adopted for the specified areas of high risk only. The areas of high risk will be agreed by the WSG (see Appendix 2).

Water services shall be routinely checked and inspected as part of a Planned Preventive Maintenance (PPM) system and should be well maintained. The frequency of inspections and maintenance will depend on the system and the risk it presents. For most systems in operation it will be sufficient to inspect and check the following:

- Water temperatures at calorifiers or storage vessels (monthly).

- Conditions of tanks – annually or more frequently if there is a reason for suspect contamination. A safe system of work needs to be implemented to protect maintenance staff and system hygiene.

- Calorifiers base drains flushed quarterly to minimise sludge accumulation, and run until a temperature of at least 50c is attained and held for 2 minutes.

- Conditions of any on-line water treatment system if installed. This should be checked in accordance with the manufacturer's instructions.

- Pipework system for hot and cold systems should use a cross flow design through the storage vessel.

If the inspection reveals contamination, damage or malfunction, remedial action should be taken as soon as possible.

During temporary closure of wards or departments, hot and cold water service systems must be regularly drained and flushed. This should include the opening of all taps and running of shower units for a minimum of 3 minutes, and the flushing of WCs on a twice weekly cycle. Note for ward closures this will be an Estates Department responsibility, for partial closures or for sinks/wash basins baths or showers which are infrequently used it will be the responsibility of the Ward Manager (see appendix 1).

Dismantle, clean and de-scale shower heads and hoses quarterly or as deemed necessary.

Water systems shall be dosed with chemicals/biocides to prevent the development of legionellae bacteria. These systems will be proprietary manufactured Chlorine Dioxide systems.

Any system adopted must be listed in the current edition of the Water Fittings and Materials Directory (WFMD).

Air conditioning and ventilation systems have been shown to provide a route for distributing contaminated air throughout a building. Particular attention should be paid to the humidification process. Ductwork shall be examined for evidence of "ponding", that is where water has collected in sections of the ducting. If evidence is apparent then modifications to the ductwork shall be carried out.

APPENDIX 5 Areas of high risk (Legionella and Pseudomonas testing) County Site

AREA	Requires Legionella Test	Requires Pseudomonas Test
Renal Day Patients	YES	NO
Critical Care Unit	YES	YES
Paediatric Out-Patients	YES	NO
Haematology / Oncology Day Patients.	YES	NO
Immuno-compromise ward	YES	YES