



<b>Department:</b>	Infection Prevention and Control Department		
<b>Document:</b>	Multidisciplinary Policy and Procedure (MPP)		
<b>Title:</b>	Prevention of Legionella in the Healthcare Setting		
<b>Applies To:</b>	Nurses and Technician		
<b>Preparation Date:</b>	November 07, 2021	<b>Index No:</b>	IPC-MPP-042
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## 1. PURPOSE:

- 1.1 To outline the policies and procedures on effective water treatment that is essential to control Legionella including microbial activity, biofilm development, corrosion, scale deposition and the retention of matriculate solids.

## 2. DEFINITONS:

- 2.1 Legionella pneumophilia is a common cause of both community-acquired and healthcare associated (HAI) pneumonia. Clinical manifestations are non-specific; but, high fever, diarrhea, and hyponatremia are often distinctive
- 2.2 Legionella organisms are aerobic gram-negative fastidious bacteria that do not grow on standard bacteriologic media, thus, specialized laboratory methods and culture media are necessary for diagnosis. Legionella species can cause pneumonia (Legionnaires' disease) and Pontiac fever, a flu-like illness which occur primarily in immunocompromised patients.

## 3. POLICY:

- 3.1 This policy establishes and implements water quality monitoring procedures to ensure water safety at all times and secure alternative sources of water during system disruption.
- 3.2 It further provides an effective procedure which includes treatment such as chlorination, monitoring, cleaning of water supply system and water sampling schedule.
- 3.3 Water supply sampling for Legionella species shall be conducted by the Environmental Health staff of the Infection Prevention & Control (IP&C) Department, the Utility and Maintenance (U&M) staff from the Facility Management & Safety (FMS) as indicated in the following procedures.
- 3.4 IP&C shall furnish recommendations to Facility Management and affected areas in order to take the necessary preventive measures and immediate corrective action including water restriction and/or lifting water restriction based on criteria.

## 4. PROCEDURE:

- 4.1 A regular preventive maintenance program shall include monitoring, inspecting, cleaning and disinfecting the water supply system
- 4.2 Water sampling procedure shall be conducted as per microlaboratory recommendations.
- 4.3 Chlorine levels shall be tested and recorded each time water samples are collected.
- 4.4 All samples shall be delivered to the laboratory for bacteriological studies including Legionella and results shall be obtained within 24 hours, to be recorded and reported to the concerned departments.
- 4.5 Abnormal results shall be reviewed by the IP&C environmental health staff as indicated
- 4.6 Legionella Limit Values
  - 4.6.1 For patients with classical individual risk factors such as pediatric/neonatal ICUs, dialysis patients, and burn unit patients:

- 4.6.1.1 Target level <1000 CFU/l Legionella sp.
- 4.6.1.2 Alert level 1000 -10,000 CFU/l Legionella sp.
- 4.6.1.3 Maximum level >10,000 CFU/l Legionella sp.
- 4.6.2 For high-risk patients, such as those with severe immunodepression, transplantation, corticotherapy with equivalent dose of 0.5 mg/kg per day prednisolone for 30 days or more, or 5 mg/kg per day for 5 days or more:
  - 4.6.2.1 Target level not detectable
  - 4.6.2.2 Maximum level  $\geq$  250 CFU/l Legionella spp.
  - 4.6.2.3 The target levels defined are seen as the best way to minimize the risk
  - 4.6.2.4 The alert level is to ensure that relevant people are informed and water prevention shall be revised.
  - 4.6.2.5 The maximum level means corrective action and water restriction shall be applied to the affected area/s and re-use of water in the same area/s must be officially approved by IP&C Department.

## 5. MATERIALS AND EQUIPMENT:

### 5.1 Forms and Records:

- 5.1.1 N/A

### 5.2 Materials and Equipment

- 5.2.1 N/A

## 6. RESPONSIBILITIES:

- 6.1 Health Care workers and IPC Department

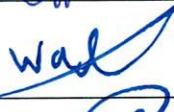
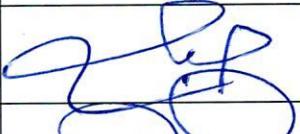
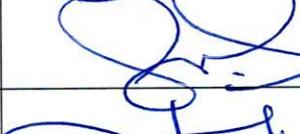
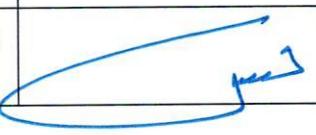
## 7. APPENDICES:

- 7.1 Preventive Measures for Legionella Control
- 7.2 Legionella Sampling Points
- 7.3 Corrective Actions Flowchart

## 8. REFERENCES:

- 8.1 The GCC Infection Prevention and Control Manual. 3<sup>rd</sup> Edition 2018.  
<file:///C:/Users/SPawar/Desktop/pdf%20reference/The-GCC-Infection-Prevention-and-Control-Manual-3rd-Edition.pdf>

**9. APPROVALS:**

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## APPENDICES attachment

### 7.1 Preventive Measures for Legionella Control

Location	Preventive Measures	Responsibility	Remarks
Cooling Towers	1. PH monitoring 2. Monitoring free chlorine. 3. Use an effective hospital-approved biocide on a regular basis 4. Legionella sp. monitoring	As per hospital	<ul style="list-style-type: none"> <li>Sampling of Legionella on a quarterly basis.</li> <li>Free chlorine should not be less than 0.5 mg/l</li> </ul>
Hot and cold-water distribution systems	1. Keep temperature < 20 °C for cold water 2. Keep temperature > 50 °C for hot water 3. Monitoring of Free Chlorine	As per hospital	Free Chlorine to be measured at the point of use during legionella sampling. It must be within this range (0.2-0.5 mg/l)
Therapy Tubs & pools	1. Disinfection 2. Legionella monitoring	As per hospital	Tubs disinfection shall be performed as per manufacturer recommendations
Humidifiers Respiratory equipment	1. Respiratory apparatus must be disinfected on a regular daily basis 2. and between every patient as well	As per hospital	Disinfection shall be performed as per manufacturer recommendations
Faucets and Shower Heads	1. Disinfection 2. Hot and cold water flushing 3. Legionella monitoring	As per hospital	<ul style="list-style-type: none"> <li>Disinfection shall be conducted using IP&amp;C Department approved disinfectant.</li> <li>Flushing shall be performed during patient room cleaning for 3-5 minutes.</li> </ul>
Dental chairs	1. Disinfection 2. Legionella monitoring	As per hospital	Disinfection shall be performed as per manufacturer recommendations
Ice machines	1. Disinfection 2. Legionella monitoring	As per hospital	Disinfection shall be performed on a daily basis

### 7.2 Legionella Sampling Points

SAMPLING POINT	RESPONSIBILITY	FREQUENCY	REMARKS
Cooling Towers	As per hospital policy		
Potable Water Tank	As per hospital policy		
Humidifiers Respiratory equipment	As per hospital policy		
Faucets and Shower Heads at immunocompromised patient areas (e.g., oncology wards, PICU, NICU, burn units) Hemodialysis Unit Dialysis Ports	As per hospital policy	Quarterly basis or as per hospital policy	<ul style="list-style-type: none"> <li>Locations of shower heads and faucets in immunocompromised inpatient areas shall be detected by IPCD.</li> <li>At least random of 25% samples will be collected from immunocompromised inpatient areas.</li> <li>Samples will only be collected post to the RO plant at hemodialysis Unit.</li> </ul>
Dental chairs	As per hospital policy		At least a random of 25% samples will be collected
Ice Machines	As per hospital policy		

### 7.3 Corrective Actions Flowchart

