Healthcare Water Systems Associated Organisms Incident or Outbreak Checklist

For use where the possible source is water or from a water outlet within a high-risk clinical area.

This checklist is an adaptation of the 2015 *Pseudomonas aeruginosa* Outbreak Checklist, pending new resource development and should be used in conjunction with the guidance contained within Chapter 4 of the National Infection Prevention and Control Manual (NIPCM).

Action	✓ or ✗
Define incident	
• Colonisation or infection of patients established, or	
• Water results that are out of specification.	
Assess and report	
• Ensure timely local reporting of the incident in accordance with Board governance process.	
• Assess the impact of the incident using the Healthcare Infection Incident Assessment Tool (HIIAT) and report to ARHAI Scotland in line with Chapter 3 of the NIPCM	
• Notify ARHAI Scotland if there is an active ongoing clinical incident where the source is considered to be tap water, regardless of HIIAT status.	
Risk assessment and mitigation	
• Following a positive water test result, undertake an immediate review of existing control measures and risk assessment to identify any remedial and/or clinical actions.	
• Engage with the Estates department to assess the water supply fittings and fixtures and ensure appropriate maintenance measures are in place, for example showers.	
• If it is essential for an affected water outlet(s) to remain in use, Point of Use (POU) filters should be installed while investigations are ongoing, and remedial actions are being considered. Chapter 4.1.6 provides additional information.	

Action	✓ or ✗
• Consider engineering requirements if outlet(s) cannot facilitate a POU filter or if there is a water splash risk introduced as a result of installation.	
• Flush all outlets – whether fitted with a POU filter or not – at least daily, for a minimum of one minute and maintain records reflecting this. The Water Safety Group (WSG) should have oversight of flushing practice to ensure compliance is achieved.	
• If applicable: ○ Breast milk should be defrosted: ○ using a water-free warming device ○ in a designated fridge, or ○ at room temperature ○ Prepare powdered infant formula with cooled boiled water, following manufacturer's instructions. ○ Discard unused milk in accordance with local waste policy.	
• Sterile water should be considered for washing babies within neonatal settings. Specifically those: ○ under 28 weeks gestation ○ that do not have intact skin ○ who have invasive line access ○ being cared for in humidified incubator	
○ Use of ice for consumption or treatment purposes is in accordance with Chapter 4.1.3.	
• For severely immunosuppressed patients, for example allogenic stem cell transplant patients, sterile water should be considered for oral care and washing.	
• Drug preparation, aseptic or other clinical procedures should not be carried out in close proximity to sinks, water outlets, or surrounding areas where splashing of water may occur.	
Prevent contamination or recontamination of sinks	
• **Clinical Wash Hand Basins (CWHB) are only used for hand washing.**	
• CWHB and patient sinks should not be used for disposal of food and drink items, clinical waste, body fluids or medicine.	
• Patient items, patient care equipment or medical equipment should not be stored on or close to water outlets that may give rise to splash contamination.	
• Confirm domestic staff are discarding used cleaning products safely (**not** in the CWHB).	
• If there is a clinical need to retain an affected outlet(s) guidance should be	

Action	✓ or ✗
sought from the WSG and/or Incident Management Team (IMT).	
• Discard empty hand hygiene product bottles. These should never be topped up and reused.	
• Refillable bottles should not be used in high-risk clinical settings, **except** when required for reconstituting disinfection solutions.	
Implement additional precautions	
• During ongoing water quality issues, use hand rub as standard for hand hygiene. If hands are visibly soiled, contaminated with blood or body fluids, or if gastro-intestinal infection is suspected or confirmed in the patient 1) wash hands with soap and water, 2) dry thoroughly, 3) then perform hand hygiene with hand rub	
• Consideration should be given to minimising immunocompromised patients contact with tap and shower water.	
When investigating the incident or outbreak, consider the following:	
• The patient's entire inpatient and outpatient journey for possible exposures.	
• The possible routes of transmission: direct contact, indirect contact, aerosolization and aspiration. • Examples are provided below, however, this list is not exhaustive. Refer to Chapter 4 for further guidance. **Direct contact** ○ through ingestion of contaminated water or ice ○ direct contact of contaminated water with any portal of entry, for example, surgical site wound, invasive devices, exposed or wounded skin **Indirect contact** ○ via contact with contaminated fomites or equipment such as: ○ diagnostic equipment, for example bronchoscopes, bronchoscope automatic washing machine ○ ventilator equipment, for example suctioning apparatus ○ via contact with contaminated personnel, for example the hands of healthcare workers ○ dissemination of water systems associated organisms from colonised patients to the environment or to other patients	

Action	✓ or ✗
Aerosolization ○ via contaminated water droplets generated from splashing or spraying onto and from CWHB, drains, sinks, showers and flushing toilets ○ via aerosols released from contaminated water-dependent equipment, for example cardiopulmonary bypass machines and heater-cooler units used during cardiac surgery, humidifiers within mechanical ventilators **Aspiration** ○ via the inhalation of contaminated water into the airways	
• Consider review of relevant clinical procedures involving invasive devices or aseptic procedures, for example bronchoscopy practice, wound dressing practice and invasive line care, IV drug preparation and administration and care associated with direct water usage.	
• If appropriate review process of warming of baby feed and methods used to wash babies.	
• Review maintenance schedules for showers and for showers that have flexible hoses in place to accommodate patients with an assisted shower. • Ensure these fixtures can be securely kept in place when not in use, such as secured in place with an appropriate clip, to mitigate the IPC risk associated from dangling shower heads.	
• In addition to routine microbiological water testing, the frequency of water testing should be increased: ○ during a suspected or confirmed outbreak known or suspected to be associated with the water systems, or ○ if surveillance identifies an increased incidence of infection known or suspected to be associated with the water systems. Chapter 4.1.7 provides guidance on water testing.	
• Environmental surface sampling may be beneficial in addition to routine water sampling if seeking to determine the extent of environmental contamination. This should be risk assessed as part of the overall management strategy.	
Further control measures	
• Patient placement should be risk assessed by the IPC and clinical teams, taking into account the transmissibility risk of the organism.	

Maintain communication with ARHAI Scotland in accordance with reporting of Healthcare Infection Incidents, Outbreaks, and Data Exceedance through the Outbreak Reporting Tool (ORT).