U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

Healthcare Facility Water Management Program Checklist

Available from: https://www.cdc.gov/healthcare-associated-infections/php/toolkit/water-management.html

This checklist is intended to assist in the development of an all-microbial hazards approach to water management in a healthcare facility, and can:

- Evaluate a comprehensive water management program.
- Identify individuals to participate in the water management program.
- Assist with assessments, including hazard analyses, environmental risk assessments, and infection control risk assessments.
- Inform water monitoring practices guided by the management program.

Depending on complexity of the building plumbing systems, a comprehensive program may include some water management plans. These plans should include identifying areas within the system where control points are and monitoring methods and procedures (see ASHRAE 188:2021; ASHRAE Guideline 12: 2023; and ASHRAE 514:2023)

Establish a Water Management Program Team (the Designated Team)

For all facility types, establish clear lines of communication with representatives such as the water utility provider and the local health department on an as needed basis.

☐ Define membership (at a minimum should represent the following 'roles' and may include others depending on facility size and type):

- Facilities management or senior leader
- Facilities engineer or maintenance representative
- Infection prevention
- Environmental services
- Department heads or designee

☐ Develop a charter that defines roles and responsibilities of members, chair, meeting schedule, etc.

☐ Have you identified team members who should:

☐ Y ☐ N Be familiar with the facility water system(s)

☐ Y ☐ N Identify control locations and control limits

For nursing homes, the group may consist of three or more individuals representing management, nursing (someone filling the role of infection control), and the facilities engineer; ad hoc members with subject matter expertise (to provide advice) may be water consultants.

Larger facilities representation may include a senior leader, risk management, infection prevention, facilities engineers, central sterile services, laboratory, and ad hoc members from clinical departments or water consultants.

☐Y ☐ N Identify and take corrective actions

☐Y ☐ N Monitor and document program performance

☐Y ☐ N Communicate to the Senior leadership, staff, health department, and representatives of the drinking water supplier (if needed)

☐Y ☐ N Oversee the program

☐Y ☐ N Access necessary resources to implement changes

☐ Develop the Water Management Policies and Procedures, Plans, and Protocols

Describe your building water systems

☐ Text description of the building water systems, campus water systems, etc.

☐ Develop flow diagrams that describe these systems

☐ Have floor schematics available for identifying water flow, fixtures, and equipment connected to facility water

Identify external hazards (such as compromised supply) and describe plans for mitigating or managing these events:

☐ Trace or no disinfectant residual upon entry into the building

☐ Water main breaks, service outages or disruptions

☐ Low pressure events

☐ Flushing hydrants

☐ Boil water advisory

☐ Nearby construction

☐ Other (specify):

_____

_____

Identify areas where biofilms may be present. Identify areas where opportunistic pathogens of premise plumbing may pose a risk to patients:

☐ Identification of the disinfectant type(s) in the water entering the building

☐ Identify water processing equipment and associated components (for example softening, other water conditioning measures, and supplemental disinfection)

- How water is received and processed, including how water is screened, filtered, conditioned, stored, heated, tempered, cooled, recirculated, and delivered to water use end points

See Considerations for Reducing Risk: Water in Healthcare Facilities (https://www.cdc.gov/healthcare-associated-infections/php/toolkit/water-management.html)

- ☐ Identify storage tanks and describe water turnover rates, residence times, etc.
- ☐ Identify areas of stagnation (such as dead legs and vacant units or rooms)
- ☐ Identify areas with hand-held showers and faucets with aerators or flow restrictors
- ☐ Identify areas with no residual disinfectant
- ☐ Identify areas where temperatures can support microbial growth
- ☐ Identify locations of commodes and hoppers
  - ☐ Y ☐ N Do all commodes and hoppers have covers that can be closed when flushing?
  - ☐ Y ☐ N If no cover present, are they located in a separate room with a door that can closed?
- ☐ Identify sinks and sink locations
  - ☐ Y ☐ N Do sinks in patient care areas have aerators and flow restrictors?
  - ☐ Y ☐ N Identify electronic sinks or faucets and temperature setting for mixing valve
  - ☐ Y ☐ N Do all sinks in patient care areas have drains that are offset from faucet flow stream?
  - ☐ Y ☐ N Are there barriers (splash guards) between sinks and adjacent medication preparation areas and patient supplies?
  - ☐ Y ☐ N If splash guards are not present, is medication prep and clean supply storage > 3 feet from sinks?
- ☐ Identify ice machine locations used for clinical care such as swallow studies, pain management, control of bleeding, for cooling medications and saline and more
- ☐ Are filters in place on incoming water to the ice machine? If so, what type of filters?
  - ☐ Carbon filter
  - ☐ Microbiological filter (0.2µ)
  - ☐ Ultrafilter (0.001 – 0.1µ)

Conduct a Water Infection Control Risk Assessment (WICRA Adapt for potential water exposures both direct and indirect see: https://www.cdc.gov/hai/pdfs/prevent/water-assessment-tool-508.pdf)

- ☐ Identify patients at increased risk of infection such as:
  - Burn Patients with immune suppression
  - Patients with disease or injury
  - Patients with indwelling devices such as central venous catheters, peritoneal dialysis

catheters, etc.

- Patients with open wounds
- Patients undergoing endoscopy

☐ Risk stratify procedures and processes

☐ Identify potential exposures to water

☐ Identify control point locations and determine how control measures will apply by using both the environmental assessment and WICRA

Decide how to monitor control measures (some examples)

☐ Water temperature

See: Guidelines for Environmental Infection Control in Healthcare Facilities (https://www.cdc.gov/infection-control/hcp/environmental-control/index.html)

☐ Residual disinfectant

☐ Heterotrophic plate count (HPC)

☐ Total organic carbon (TOC)

☐ Total dissolved solids (TDS)

☐ Review trend data and report out of control results

☐ Determine frequency for monitoring

☐ Other (specify):

_____

_____

☐ Set control limits for control measures that will be monitored (e.g., water temperature, residual disinfectant, HPC, or other parameters as determined by the “Designated Team” in the facility water management program).

Corrective Actions (some examples)

☐ Eliminate dead legs and unused branches

☐ Remove or repurpose high risk features (such as water features or decorative fountains)

☐ Flush taps or fixtures in vacant rooms

☐ Decontamination (shock treatment or remediation using supplemental treatment for short period of time, or continuous point of entry disinfection)

☐ Change fixtures/handheld showers

☐ Point of use filtration

☐ Supplemental building disinfection systems.

☐ Routine and intermittent supplemental disinfection (requires registration with State drinking water program)

Small drinking water facilities that treat water are now subject to drinking water regulations

- ☐ Raise hot water temperature if in tepid zone (16°C - 38°C)
- ☐ Other (specify):

_____

_____

Outbreak and Contingency Response Plans

- ☐ Ability to detect, investigate, and respond to a sentinel infection or cluster that is potentially linked to a water source
- ☐ Collect epidemiologically linked samples (clinical and environmental)
- ☐ Notify the health department
- ☐ Arrange for molecular typing or relatedness testing
- ☐ Reassess water control measures and apply corrective actions

See also

HAI Outbreak Investigation Toolkit (https://www.cdc.gov/healthcare-associated-infections/php/toolkit/outbreak-investigations-toolkit.html)

Tap Water Quality and Infrastructure Discussion Guide for Investigation of Potential Water-Associated Infections in Healthcare Facilities (https://www.cdc.gov/healthcare-associated-infections/php/toolkit/water-management.html)

Confirmation: Establish procedures to confirm that the implemented program is working

- ☐ **Verification**: Determine if the plan is being implemented and operated as designed. Review the plan regularly to ensure it is effective and controls hazardous conditions throughout the building's water systems
- ☐ Conduct regularly scheduled meetings to review monitoring of control measures

☐ **Validation:** Determine what conditions or outcomes inform a program's implementation

☐ Perform clinical surveillance for infections due to opportunistic pathogens of premise plumbing. See: Considerations for Reducing Risk: Water in Healthcare Facilities (https://www.cdc.gov/healthcare-associated-infections/php/toolkit/water-management.html)

☐ Identify clusters and conduct an epidemiologic investigation.

☐ Routine environmental sampling for Legionella (optional consideration).

Base decisions on building environmental assessment, water quality data, and context of whether disease is present or absent: *Legionella* Routine Environmental Sampling (https://www.cdc.gov/control-legionella/php/guidance/monitor-water-guidance.html) and environmental sampling (https://www.cdc.gov/infection-control/hcp/environmental-control/appendix-c-water.html#cdc_generic_section_3-water-sampling-strategies-and-culture-techniques-for-detecting-legionellae)

Monitoring and Corrective Actions

- ☐ Establish monitoring procedures to determine whether the measured physical and chemical characteristics of control measures are within the specified control limits
- ☐ Ensure corrective actions are defined to restore the measured physical and chemical characteristics for each control measure

Documentation: Document all activities of the program

- ☐ Team roster: Names, titles, contact info, team responsibility, member roles
- ☐ Building description: Location, building age, use, occupants, visitors, bed occupancy rate, additions or renovations, etc.
- ☐ Note any construction or renovations and that have occurred
- ☐ Water system description: Provide both text and process diagrams as well as the location of attached equipment
- ☐ Control measures: Identify locations in the system where you can monitor and apply critical limits and controls
- ☐ Confirmatory procedures: Perform verification steps and validation to show effectiveness of the water management plan as designed
- ☐ Sampling and testing: Document collection and transportation methods, chain of custody, and identify the laboratory performing assays if environmental testing is conducted

Communication Plan

- ☐ Provide notification to building staff or occupants that a plan is in place and provide team's contact information. Issue regular updates as the plan is being implemented or modified
- ☐ Report to team, infection control, hospital administration, other affected parties if control limits are exceeded, and corrective actions are to be applied
- ☐ Consider quarterly and annual reports. Send reports to management and occupants and consider having a facility quality review since the activity is part of Continuous Quality Improvement (CQI).
- ☐ Establish notification protocols with public health points of contact for when a sentinel infection or cluster is detected.

Program Review

- ☐ Conduct a program review at least annually and update the WMP as needed

Resources

1. CDC Infection Control Assessment Tools: https://www.cdc.gov/hai/prevent/infection-control-assessment-tools.html
2. Water Infection Control Risk Assessment: https://www.cdc.gov/healthcare-associated-infections/media/pdfs/water-assessment-tool-508.pdf?CDC_AAref_Val=https://www.cdc.gov/hai/pdfs/prevent/water-assessment-

tool-508.pdf
3. CDC Environmental infection control for healthcare facilities: https://www.cdc.gov/infection-control/hcp/environmental-control/index.html
4. CDC Legionella Tool kit: https://www.cdc.gov/control-legionella/php/toolkit/control-toolkit.html
5. Scanlon MM, Gordon JL, Tonozzi AA, Griffin SC. Reducing the Risk of Healthcare Associated Infections from Legionella and Other Waterborne Pathogens Using a Water Management for Construction (WMC) Infection Control Risk Assessment (ICRA) Tool. *Infect Dis Rep*. 2022;14(3):341-359 (https://www.mdpi.com/2036-7449/14/3/39)
6. Scanlon MM, Gordon JL, Tonozzi AA, Griffin SC. Supplemental File S1: WMC-ICRA Water Quality and Safety Matrix for Construction Activities in Healthcare Settings; Supplemental File S2: WMC-ICRA Pre-Construction Risk Assessment Checklist.(https://www.mdpi.com/article/10.3390/idr14030039/s1)
7. ASHRAE. Legionellosis: Risk Management for Building Water Systems, ANSI/ASHRAE 188:2021 (https://www.ashrae.org/technical-resources/standards-and-guidelines/read-only-versions-of-ashrae-standards)
8. ASHRAE. Managing the Risk of Legionellosis Associated with Building Water Systems. ASHRAE Guideline 12: 2023 (https://www.ashrae.org/technical-resources/standards-and-guidelines/read-only-versions-of-ashrae-standards)
9. ASHRAE. Risk management for building water systems: physical, chemical, and microbial hazards. ANSI/ ASHRAE 514:2023 (https://www.ashrae.org/technical-resources/standards-and-guidelines/guidance-for-water-system-risk-management)