

Water Infection Control Risk Assessment (WICRA) for Healthcare Settings

INTRODUCTION

- ◆ A water infection control risk assessment (WICRA) is a critical component of water management programs (WMP) in healthcare settings. WMP team members can use a WICRA to evaluate water sources, modes of transmission, patient susceptibility, patient exposure, and program preparedness.
- ◆ A WICRA may be conducted during the initial development of a WMP and updated over time. The frequency of subsequent assessments should be informed by and defined in the WMP.
- ◆ Performing a WICRA using this tool will generate numerical scores of perceived risk, which can assist in prioritizing WMP activities such as monitoring and mitigation efforts. Total risk scores are intended for internal prioritization and do not hold significance outside the context of each site-specific WMP. Typically, the risks with highest scores will be used for priority focus, though some with lower scores may be given special consideration (e.g., mitigation can be quickly and easily implemented). Specific risk management actions should be determined in accordance with WMP activities.
- ◆ This WICRA tool provides a completed example for a Burn Intensive Care Unit (BICU). This may be used as a reference when completing the fillable document, which is intended to be flexible for different WMP needs.

For more information about water-associated pathogens, see [CDC's Reduce Risk from Water](#) page.

INSTRUCTIONS

- ◆ **Step 1:** Identify the areas within your facility to assess using the WICRA tool. Consider grouping each page by location (e.g., unit/ward/wing/building). Use the Location column for additional information (e.g., space/room/area).
- ◆ **Step 2:** Identify potential water sources, considering the examples on the next page. Each row of the WICRA table may be used for a unique exposure, or set of like exposures, in a location (e.g., sink, hopper, shower, fountain, ice machine).
- ◆ **Step 3:** Categorize potential modes of transmission for water-associated pathogens, considering the categories on the next page. Record this in the Modes of Transmission column.
- ◆ **Step 4:** Classify the patient susceptibility for each water source, considering the categories on the next page (highest, high, moderate, low). Record a score in the Patient Susceptibility column (e.g., from 4 to 1).
- ◆ **Step 5:** Characterize patient exposure, considering the categories on the next page (high, moderate, low, none). Record a score in the Patient Exposure column (e.g., from 3 to 0).
- ◆ **Step 6:** Determine the current level of preparedness in your WMP, considering the categories on the next page (poor, fair, good). Record a score in the Current Preparedness column (e.g., from 3 to 1).
- ◆ **Step 7:** Multiply the numerical scores in each column to calculate a total risk score for each water source. Record notes on specific pathogens or other considerations in the Comments column.
- ◆ **Step 8:** Rank the total risk scores, by location and across the facility. Use this internal ranking to inform WMP activities.



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WATER SOURCES

Patients are potentially exposed to water via the healthcare environment, equipment, or procedures. Water sources include, but are not limited to:

- Sinks
- Water source
- Sinks
- Drains
- Showers
- Toilets
- Hoppers
- Humidification devices
- Mechanical ventilators
- Endoscopes
- Heater cooler devices
- Ice machines
- Indoor decorative fountains
- Lactation equipment
- Enteral feeding
- Bathing procedures
- Oral care



MODES OF TRANSMISSION

When assessing risk of healthcare-associated infections caused by waterborne pathogens, consider the diverse modes of transmission, including:

- Direct contact
(e.g., bathing, showering)
- Ingestion of water
(e.g., consumption of contaminated ice)
- Indirect contact
(e.g., from an improperly reprocessed medical device)
- Inhalation of aerosols dispersed from water sources
(e.g., faucets with aerators)
- Aspiration of contaminated water
(e.g. use of tap water to flush enteral feedings)



PATIENT SUSCEPTIBILITY

Patient populations with compromised immune status, comorbidities, and exposure to certain procedures are more vulnerable to infections caused by waterborne pathogens. Units/wards/wings can be classified according to those patients treated in these areas:

- Highest
(e.g., BMT, solid-organ transplant, hematology, medical oncology, burn unit, NICU)
- High
(e.g., non-transplant ICUs, ORs)
- Moderate
(e.g., general inpatient units)
- Low
(e.g., waiting rooms, administrative office areas)



PATIENT EXPOSURE

In order to characterize patient exposure to water sources, consider a categorization scheme that encompasses factors such as the frequency (how often), magnitude (how much), and duration (how long) of exposure:

- High
(e.g., high frequency, magnitude, and duration)
- Moderate
(e.g., combination of high and low frequency, magnitude, and duration)
- Low
(e.g., low frequency, magnitude, and duration)
- None
(e.g., patients are not exposed to the water source)



CURRENT PREPAREDNESS

Consider how your WMP addresses different water sources, as determined by factors such as policies and procedures already in place, relevant staff practice, and implemented mitigation strategies.

- Poor
(e.g., limited policies and procedures, staff practice, and mitigation strategies)
- Fair
(e.g., some policies and procedures, staff practice, and mitigation strategies)
- Good
(e.g., robust policies and procedures, staff practice, and mitigation strategies)

Water Infection Control Risk Assessment (WICRA) for Healthcare Settings

Facility Name: Hospital A

Assessment Location: Burn ICU

Performed By (names): Jane Smith and John Doe

Assessment Date: 10/01/2020

WMP Team Role(s) (check all that apply):

☒ Hospital Epidemiologist/Infection Preventionist

☒ Facilities Manager/Engineer

☐ Environmental Services

☐ Compliance/Safety Officer

☐ Risk/Quality Management Staff

☐ Infectious Disease Clinician

☐ Consultant

☐ Equipment/Chemical Acquisition/Supplier

☐ Other (please specify):

Location	Water Source	Modes of Transmission	Patient Susceptibility Highest = 4 High = 3 Moderate = 2 Low = 1	Patient Exposure High = 3 Moderate = 2 Low = 1 None = 0	Current Preparedness Poor = 3 Fair = 2 Good = 1	Total Risk Score = Patient Susceptibility x Patient Exposure x Preparedness	Comments
BICU Inpatient Rooms	Sink counter storage of patient care supplies	Indirect contact; splashing onto supplies	4	3	3	36	Install splash guards; QI for sink hygiene; and flushing
BICU Inpatient Rooms	Toilets without lid	Direct contact	4	3	2	24	Place lid on toilet if in patient room
BICU Soiled Utility	Hopper, no lid, behind closed door	Indirect contact	4	2	1	8	Automatic door closure; appropriate soiled equipment storage
BICU Medication Preparation Room	Sink with aerator, no splash guard	Aerosolization, and potential for splashing	4	2	3	24	Install splash guards; evaluate removing aerator
BICU Hydrotherapy Room	Debridement showers	Direct contact	4	3	1	12	Monthly EVS audits room indicating 95% adherence to policies
BICU Nurses Station	Sink closest to door	Indirect contact; HCW hands; devices	4	2	3	24	Install splash guards or move IV bags storage

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Risk/Quality Management Staff
Equipment/Chemical Acquisition/Supplier

Facilities Manager/Engineer
Infectious Disease Clinician
Other (please specify):

Environmental Services
Consultant

Compliance/Safety Officer

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Water Infection Control Risk Assessment (WICRA) for Healthcare Settings (continued)

Location	Water Source	Modes of Transmission	Patient Susceptibility Highest = 4 High = 3 Moderate = 2 Low = 1	Patient Exposure High = 3 Moderate = 2 Low = 1 None = 0	Current Preparedness Poor = 3 Fair = 2 Good = 1	Total Risk Score = Patient Susceptibility x Patient Exposure x Preparedness	Comments