



# Use of Stand-Alone Room Air Humidifiers in Nursing Homes and ICF/IIDs

Wisconsin Healthcare –Associated Infections in LTC Coalition

## Purpose:

The purpose of the position paper is to:

- Provide guidance regarding the use and maintenance of stand-alone room air humidifiers in Nursing Homes and Intermediate Care Facilities for Individuals with Intellectual Disabilities (ICF/IIDs).
- Encourage Nursing Homes and ICF/IIDs to join with the Division of Quality Assurance (DQA) and the Wisconsin Healthcare-Associated Infections in Long-Term Care Coalition (WI HAI in LTC Coalition) to support evidence-based practice in the use and maintenance of stand- alone room air humidifiers.

## Introduction:

Stand-alone room air humidifiers are not regulated by the FDA and therefore, they are not considered durable medical equipment in healthcare facilities. Peer reviewed medical journals have reported that stand-alone room air humidifiers have been associated with cases and outbreaks of pneumonia associated with *Legionella pneumoniae* and *Acinetobacter sp.*

Nursing Home residents and their families often or routinely request the use of stand-alone room air humidifiers to improve ambient air comfort.

In general, infection control guidance documents do not recommend the use of stand-alone room air humidifiers. However, guidelines and fact sheets discussing proper use and maintenance of stand-alone humidification devices in health care facilities are available from the Center for Disease Control and Prevention, the Environmental Protection Agency, the United States Consumer Product Safety Commission, and Public Health Ontario.

Central indoor air humidity monitoring and regulation in context of healthcare facility heating, ventilation and air conditioning systems, as well as oxygen humidification or humidification during mechanical ventilation is not relevant to this discussion and beyond the scope of this monograph

## Background:

Stand-alone room air humidifiers utilize one of two processes to add moisture to air: evaporation or aerosolization.



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In devices utilizing evaporation, humidified air is produced using a heat source to boil water or by using a fan to blow ambient air across a water saturated screen or felt.

Alternatively, in humidifiers utilizing aerosolization, small water droplets are produced by a reduction in fluid pressure occurring when fluid flows through a narrow section of a pipe (Venturi effect), ultrasonically, or by rapidly spinning discs.

Both types of humidifiers have water reservoirs. Consequently, potential infectious microbial contamination is credited to water stagnation or formation of biofilms within the reservoir, related tubing, or evaporation screens and felts.

#### **Guidance related to use of stand-alone room air humidifiers:**

There is a lack of evidence to support the medical benefit in the use of stand-alone room air humidification devices in Nursing Homes and ICF/IIDs. The decision to incorporate this device as part of a resident's plan of care should be based on a case-by-case basis. The following factors should be considered prior to and during use of a stand-alone room air humidification device:

1. These devices should be used in the context of an organization's general infection control risk assessment. There are several other critical considerations that need to be addressed including:
  - a. Policies and procedures to address proper assessment, use, maintenance, and documentation of compliance with cleaning and maintenance procedures and processes.
  - b. Staff education and competency validation in device maintenance.
  - c. Documentation of discussions related to resident/family education of device use, safety and maintenance in accordance with organizational policies and procedures.
2. Most accounts of stand-alone room air humidifier associated infections have been attributed to aerosol generating humidifiers. Guidelines and Fact Sheets referenced in this position paper recommend utilizing devices which add moisture to air by evaporative mechanisms for humidification.
3. Follow the manufacturer's instructions regarding cleaning, disinfecting, and maintenance of stand-alone room air humidification devices, water reservoirs, evaporative screens and other water contact surfaces.
4. In absence of clear manufacturer instruction, empty the tank, wipe all surfaces dry, and refill the water in portable humidifiers daily to discourage microbial growth or formation of biofilms.
5. Use of sterile water is recommended to minimize microbial growth.



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Note: Distilled water has been suggested to reduce dissemination of mineral particulates which may cause adverse health events. However, a device utilizing the evaporative process should not aerosolize minerals.

6. Water should never be added (topped off) to a humidifier reservoir. The reservoir should be emptied and rinsed before adding fresh water each time a refill is needed.
7. Keep wick filter inside humidifier clean and free from build-up.
8. Incorporate cleaning, disinfection and maintenance strategies of stand-alone room air humidification devices into the organization's water management treatment program.

### References

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