

Use of Fans and Air Conditioning Units in Healthcare Settings

1. Guideline

Options for cooling healthcare spaces should explore alternative cooling measures and optimization of existing heating, ventilation and air conditioning (HVAC) systems prior to considering the use of air conditioning units (A/C units), due to the risk of spread of microorganisms. There is also a risk that A/C units may disrupt the air exchange process within a room and alter airflow patterns.

Fans and A/C units may be considered using the criteria included within this guideline.

IPAC best practices should be followed when using a fan or A/C unit in a clinical setting.

1.1. Cooling Strategies

Before considering the use of a fan or A/C unit, other options for cooling should be explored.

- 1.1.1 Facilities Maintenance and Operations (FMO) should review, maintain, and monitor HVAC systems as optimal functioning will help improve general ventilation by:
 - 1.1.2 Maintaining relative humidity at 40-60%
 - Filter the air
 - Provide adequate fresh air exchange
 - 1.1.3 Consider blocking direct sunlight
 - 1.1.4 Have the patient take a cool or warm shower, give sponge baths, provide cold fluids and, or apply cold packs
 - 1.1.5 **Fans should be used in preference to A/C units**
 - 1.1.6 A/C Units should only be used in extreme heat events when patient safety may be compromised. A/C units should be used for short periods of time only and in consultation with IPAC

Note: In facilities that monitor and maintain airflow throughout the building, opening a window may negatively affect the functioning of the fan or A/C unit.

Further information on health and safety in hot weather can be accessed within the following documents: [Preventing Heat Stress at Work](#) and [Hot Weather Guideline for Long Term Care](#)

1.2. General

To define the safe use of fans and A/C units for seasonal hot weather events consider:

- **Product Selection**
 - Before purchase, all new items must be reviewed and approved through the IPAC Purchasing Group. Review the [Furniture and Non-Critical Equipment Purchasing Guideline for IPAC](#) and complete Appendix C for electronic equipment.
Send completed Appendix C to ipac-purchasing@islandhealth.ca for review of new product.
 - Fans:
 - Fan blades and impellers which move air, must be able to be accessed for routine cleaning and disinfection
 - Blade cages or shielding in the airflow path that may accumulate dust and debris, must be able to be disassembled for cleaning and disinfection

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- A/C Units:
 - All portable air conditioning units must be able to be cleaned and disinfected ensuring access to:
 - all exposed surfaces
 - filters
 - drip trays
 - Portable A/C units are CSA approved and labeled as such
 - Preference is given to A/C units that do not have a drip tray, but drain water vapor to the exterior of the building through an exhaust hose
- **Care and Maintenance**
 - Follow manufacturer's instruction for fan or A/C units use and maintenance
 - Regular inspection is required for product integrity and safety. Inspection should be completed seasonally, when new, and at the end of the season prior to storage
 - Immediately remove from service any fan or A/C unit that is damaged and cannot be repaired
 - When renting or leasing A/C units ensure there is an established maintenance program with the company, including regular maintenance, filter cleaning/replacement and instillation
- **Cleaning and Disinfection during Period of Use**
 - All fans and A/C unit surfaces must be able to be cleaned and disinfected using a hospital grade Health Canada approved product for low level disinfection, as per manufacturer's instructions
 - Perform hand hygiene before and after cleaning, handling, or maintaining A/C unit
 - Clean and disinfect the fan or A/C unit prior to first use
 - The unit leadership will develop a preventative maintenance schedule and assign responsibility (**Appendix A**) that includes:
 - Visual inspection daily
 - Weekly cleaning and disinfection of all components
 - Additional cleaning and disinfection when visibly soiled
 - For A/C Units only:
 - If applicable, do not leave water sitting in the air conditioning unit when not in daily use
 - If applicable, empty clean and disinfect the drip pan daily to prevent biofilm buildup

1.3. Placement

- Fans and A/C unit use is prohibited in units under outbreak and pandemic restrictions, and within the following areas:
 - Rooms with directed air flow (e.g., negative or positive pressure)
 - Critical care areas, including Adult ICU/Neonatal ICU/CVU/CCU/PICU
 - ER and ER waiting room
 - Dialysis
 - OR/Endoscopy Suite/procedure rooms
 - Oncology Unit

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- Medical Device Reprocessing Department (MDRD)
- Laboratory
- Areas used for storage of clean and sterile medical devices/supplies
- Soiled Utility rooms
- Rooms (single or multibed) where patients are on airborne, droplet and contact or contact precautions
 - Please note: patients in single rooms who are on contact precautions may be considered following consultation with IPAC
- Medication preparation areas, including workstations on wheels
- Unit nutrition stations
- If the patient has any of the following conditions or medical devices, position the fan or A/C unit so the airflow is away from patient's skin:
 - Burned skin
 - Burn dressings
 - Wounds, open or dressed
 - Tubes/lines/drains
 - Open tracheostomy
- Do not position the fan or A/C unit directly on the patient's face
- Never place the fan or A/C unit over or near garbage, linen hampers, isolation carts or medication carts
- Airflow should not be directed towards the door of the room, across environmental surfaces, or, intake or outlet vents
- Fans and A/C units should be used at the lowest speed for the least amount of disruption of dust and debris.
- Fans and A/C units will be turned off during:
 - Care (including sterile or aseptic procedures)
 - Room cleaning by environmental services
 - Short duration maintenance activities in the room, that result in open ceiling tiles, walls, floors or disturbed plumbing
- Staff use of personal hand fans, neck fans and small USB clip on fans are not permitted. Please contact Occupational Health and Safety for further personal heat management options

1.3.1. Fans:

- Fans may be used for patients not on additional precautions within:
 - A single patient room
 - A multi patient room with the following restrictions:
 - It is located within the patient's bed space
 - The curtains around the patient's bed are drawn
 - The fan is set to its 'non-oscillating' function

Consult IPAC for information on when fans are considered in other circumstances (e.g., personal use).

- When using a fan:
 - Set the bed to its lowest height
- Place the fan:
 - At least 24 inches (61cm) above the floor, on a clean table or cart

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- So the airflow is directed at the patient and towards the ceiling (do not direct it towards the floor or door of the room)
- Fans placed in windows must consider air quality conditions, as well as infection sources from outside the building, such as:
 - Maintaining established negative pressure in airborne isolation rooms (windows cannot be opened)
 - Construction activity (e.g., excavation or demolition of nearby buildings)
 - Air quality advisories

1.3.2. Air Conditioning Units

- A/C may be used for patients not on additional precautions within:
 - A single patient room
 - A multi patient room with the following restrictions:
 - Not within a patient bedspace
 - Not within a room where there are immune compromised Patients

Consult IPAC for information on when A/C units are considered in other circumstances (e.g., personal use).

1.4. Storage

1.4.1. Store in a centralized location or equipment depot

- Clean and disinfect prior to storing
- Store covered in a plastic bag
- Clean and disinfect prior to use

2. Definitions

- **Additional Precautions** – Interventions implemented for certain pathogens or clinical presentations in addition to routine infection control practices, to reduce the risk of transmission of microorganisms from patient to patient, patient to Healthcare worker and Healthcare worker to patient
- **Aseptic procedures** – specific practices and procedures performed under carefully controlled conditions, with the goal of minimizing contamination by pathogens
- **Cleaning** – The physical removal of foreign material (e.g., dusts, soil and organic material [such as blood, secretions, excretions and microorganisms]) using mechanical and/or chemical means. Cleaning physically removes, rather than kills, microorganisms
- **Disinfection** – The inactivation of disease-producing microorganisms. Disinfection does not destroy bacterial spores. Disinfection usually involves chemicals, heat or ultraviolet light
- **Patient**–In this document, the term “patient” includes residents and clients, and refers to any individual receiving care in an acute care, long-term care or community setting

3. Related Island Health Policy Documents

- [Hot Weather Guideline for Long-term Care](#)
- [Island Health Approved Equipment](#)

4. Credit

- This document has been adapted from Vancouver Coastal Health:
 - [Portable Fans and Air Conditioning Units](#)

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5. References

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6. Resources

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Appendix A: Preventative Maintenance and Assigned Responsibility

Equipment Details			
Manufacturer:		Model:	

Work Instruction			
Department that has accepted responsibility for equipment care and maintenance:	<input type="checkbox"/> Care Staff: _____ <input type="checkbox"/> Environmental Services <input type="checkbox"/> Facilities Maintenance Operations/Maintenance Staff <input type="checkbox"/> Other: _____		
Frequency of cleaning and disinfection:	<ul style="list-style-type: none"> ▪ Routinely clean and disinfect weekly if equipment is in use: <ul style="list-style-type: none"> <input type="checkbox"/> Mon <input type="checkbox"/> Tues <input type="checkbox"/> Wed <input type="checkbox"/> Thurs <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun <input type="checkbox"/> Day Shift <input type="checkbox"/> Evening Shift <input type="checkbox"/> Night Shift ▪ Discard plastic cover if removing from storage ▪ Clean and disinfect prior to first seasonal use ▪ Inspection prior to first seasonal use or if equipment is new ▪ Inspect equipment daily for damage and visible soil ▪ Clean and disinfect immediately if visible soil is seen 		
Cleaning and Disinfection process:	<ul style="list-style-type: none"> ▪ Use a cleaning and disinfecting product that is Hospital approved and Health Canada approved with DIN number ▪ Use a cleaning and disinfecting product that is compatible with the device as per manufacturer's instructions ▪ Cleaning and Disinfecting Product: _____ <ul style="list-style-type: none"> <input type="checkbox"/> Pre-Moistened Wipes <input type="checkbox"/> Ready-to-Use Liquid/Microfiber Cloth Wet Contact Time: _____		
Personal Protective Equipment:	Personal protective equipment (as required) should be considered to prevent occupational health exposure when using cleaning and disinfecting products. Please circle applicable PPE: <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> ▪ Gloves ▪ Mask </td> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> ▪ Gown ▪ Eye Protection </td> </tr> </tbody> </table>	<ul style="list-style-type: none"> ▪ Gloves ▪ Mask 	<ul style="list-style-type: none"> ▪ Gown ▪ Eye Protection
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Cleaning, Disinfection and Maintenance Steps	
Cleaning and Disinfection:	<ul style="list-style-type: none"> • Turn off equipment • Disconnect from power source • Perform hand hygiene • Don personal protective equipment • Clean and disinfect the exterior surfaces of the equipment • Clean and disinfect fan cage and all components of the equipment including fan blades and A/C unit drip trays <ul style="list-style-type: none"> ○ Follow manufacturer’s instructions to allow access to fan blades, and other components • Allow all components to air dry prior to reassembly • Reassemble the equipment and disinfect the outer casing ensuring contact with all surfaces • Allow all components of the outer casing to air dry • Ensure indicated wet contact time is achieved • Remove PPE and perform hand hygiene <p>Return equipment to patient care area (if required) or store until further use</p>
Inspection: (Daily/Seasonal/First Use)	<ul style="list-style-type: none"> • Inspect equipment daily, prior to first seasonal use, prior to initial use of newly purchased equipment • Inspect equipment for: <ul style="list-style-type: none"> <input type="checkbox"/> Visible Soil <input type="checkbox"/> Damage (chipped, cracked, exposed electrical etc.) <input type="checkbox"/> Missing parts <input type="checkbox"/> Functionality • If equipment is damaged or visibly soiled, remove from service: <ul style="list-style-type: none"> <input type="checkbox"/> Repair <input type="checkbox"/> Discard <input type="checkbox"/> Clean and disinfect
Storage:	<ul style="list-style-type: none"> • Clean and disinfect prior to seasonal storage • Cover equipment with a plastic bag • Label device as clean: <ul style="list-style-type: none"> <input type="checkbox"/> “Green Means Clean” stickers <input type="checkbox"/> Site specific process to identify item cleaned and disinfected • Identify storage area: _____

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