

## INFECTION PREVENTION & CONTROL COMMUNICATION FORM

### PORTABLE FANS – CLEANING AND USE RESTRICTIONS

#### PART 1: ISSUE & RECOMMENDATIONS

**Issue:**

Portable fans are currently used in some sites across the region to assist in patient comfort or to regulate a patient's body temperature. Other sites have chosen to disallow the use of fans in patient care areas. Staff also use fans in their work areas, which may be near patients. *This communication form does not supersede any existing site specific policy which bans the use of fans, nor does it include High-Efficiency Portable Air (HEPA)-filtered fans.*

Fans have the potential to disperse dust and airborne-transmitted microorganisms<sup>1</sup>, create airborne *Clostridioides difficile* spores<sup>3</sup>, and alter airflow patterns. While use of portable fans has not been proven to transmit infection<sup>3</sup>, these issues, as well as lack of appropriate cleaning procedures, are infection control concerns.

**Recommendations:**

1. Prohibit fans in Airborne Infection Isolation Rooms or any other pressurized room (e.g., Protective Precautions) due to pressure differentials between the room and external spaces that may disrupt the designed air flow pattern.
2. Do not use fans for patients who have been placed on Droplet or Droplet/Contact Precautions, including Contact Precautions for Methicillin Resistant *Staphylococcus aureus* (MRSA) or confirmed or suspected *C. difficile* or Norovirus infection, due to the risk of microorganism dispersal. If avoiding fans is not possible in these circumstances, close door of room or pull curtain.
3. Do not use fans in high risk areas where immunocompromised patients receive care. Immunocompromised refers to patients with congenital or acquired immunodeficiency or immunodeficiency due to therapeutic agents or hematologic malignancies.
4. Do not use fans in areas where sterile supplies are stored.
5. Do not use fans in facilities that have banned their use.
6. Perform a risk assessment on a case by case basis for patient use of fans<sup>6</sup>.
7. Adjust heating, ventilation and air-conditioning (HVAC) system in order to achieve comfortable humidity, temperature, and fresh air thus avoiding the need for the fan.
8. Perform an HVAC (facilitated by the area's supervisor) and an air quality (facilitated by the site's Occupational Health Nurse) assessment on a case by case basis for staff use of fans near patient care areas (e.g., at a nursing station).
9. If fans are approved for use:
  - Ensure airflow is into patient's bed space and not across patient to roommate or hallway
  - Direct airflow within the area in non-patient care areas (e.g., nursing station)
  - Position at patient's bed level or higher. Placement of table fans on floors is not acceptable; fans must be positioned such that airflow is level with the surface of the bed (i.e., place table fans on a surface at bed level; telescoped floor fans may be acceptable if this can be accomplished).
10. For facility-owned fans, establish cleaning and disinfection frequency; add to the area's equipment cleaning schedule.
11. Disassemble and thoroughly clean and disinfect facility-owned fans according to manufacturer's recommendations, in accordance with the Cleaning of Non-Critical, Reusable Equipment/Items for Patients in Hospital Operational Directive in the Infection Control Manual, at [http://www.wrha.mb.ca/extranet/ipc/files/manuals/ManualHospital\\_Full.pdf](http://www.wrha.mb.ca/extranet/ipc/files/manuals/ManualHospital_Full.pdf) Responsibility for this task is a site-based decision.
12. Fans owned by patients or families:
  - May be used when the family is aware of, and in agreement with, their responsibility to ensure cleaning is performed on a regular schedule (frequency of cleaning to be determined in discussion with unit staff).
  - Should be disassembled and thoroughly cleaned by the family according to manufacturer's recommendations.

#### PART 2: BACKGROUND: DISCUSSION OF ISSUE, OPTIONS AND ANALYSIS & REFERENCES

**Discussion of Issue:**

1. Use of fans may be a requirement included in the care plan for specific patients.
2. Fungal spores in dust have been shown to cause serious infections in immunocompromised patients.<sup>2</sup>
3. Fans may alter the directed airflow pattern in Airborne Infection Isolation and Protective Precautions rooms. Such alteration may result in microorganism transmission and possible infection.

4. Environmental contamination due to MRSA shedding<sup>4,7</sup>, may be increased with fan use.
5. Norovirus may be spread through droplets and aerosols while a patient is vomiting<sup>7</sup>. Fan use may facilitate spread.
6. Activities that contribute to microorganism dispersal may contribute to aerosolization and spread of *C. difficile*<sup>3</sup>. Fan use may lead to such dispersal.
7. Fans are considered non-critical reusable equipment.<sup>5</sup> Through indirect transmission, microorganisms from such equipment may spread to patients, and lead to infection.
8. Fans require cleaning and disinfection as per regional guidelines.

**Options and Analysis:**

1. Prohibit fan use in areas with directed airflow, to prevent altering the required airflow.
2. Prohibit fan use when patients are on Additional Precautions, including Contact Precautions for a patient with suspected or confirmed *C. difficile*, due to possible dispersal risk of infectious microorganisms.
3. Prohibit fan use for immunocompromised patients due to the increased risk of infection caused by dust. "Immunocompromised" refers to patients with congenital or acquired immunodeficiency or immunodeficiency due to therapeutic agents or hematologic malignancies.
4. Prohibit use in sterile supply areas to avoid risk of contaminating supplies from dust dispersal.
5. Prohibit fan use completely.
6. Consider an adjustment of the HVAC system for optimal humidity, temperature and fresh air.
7. Consider performing a risk assessment on a case by case basis to determine the need for a fan.
8. Consider an HVAC and air quality assessment for staff fan use in or near patient care areas.
9. Consider written physician orders when medical conditions warrant use of portable fans.
10. Position fans in such a way to avoid dust dispersal, as well as blowing particles outside the patient's bed space.
11. Ensure fans are cleaned according to manufacturer's instructions. For facility-owned fans, this would be the responsibility of staff; if patient/family owned, the family would be requested to do the cleaning.

**References:**

1. Bartley, J. and Olmsted, R. Construction and Renovation: A Toolkit for Professionals in Infection Prevention and Control; 3rd Ed. Association for Professionals in Infection Control and Epidemiology (APIC) (2007): pp 324-326.
2. Bartley, J. et al. Heating, Ventilation, and Air Conditioning. APIC Text of Infection Control and Epidemiology (2014). Association for Professionals in Infection Control and Epidemiology (APIC). [Heating, Ventilation, and Air Conditioning](#)
3. Best, E. et al. The Potential for Airborne Dispersal of Clostridium difficile from symptomatic patients. Clinical Infectious Diseases (2010); 50 (11): 1450-1457. Available at: <http://cid.oxfordjournals.org/content/50/11/1450.short>
4. Boswell, T.C et al. Reduction in Methicillin Resistant *Staphylococcus aureus* environmental contamination with a portable HEPA-filtration unit. Journal of Hospital Infection (2006 May); 63(1): 47-54. Available at: <http://www.sciencedirect.com/science/article/pii/S0195670105005074>
5. Cleaning and Disinfection of Non-Critical, Reusable Equipment/Items for Patients in Hospitals Operational Directive. Winnipeg Regional Health Authority. Infection Prevention and Control Manual. (2013) [IP&C Manual](#)
6. The Joint Commission. Environment of Care (CAMH/Hospitals); Use of Fans. (2008, November 24). Available at: [Environment of Care; Fan Use](#)
7. Kowalski, W. Airborne Nosocomial Microorganisms. Hospital Airborne Infection Control. CRC Press (2011). Chapter 4.

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