Airborne Contaminants: Preventing Infections From Fans Used in the Home

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Home care and hospice clinicians often encounter patients who use fans in their homes to either provide a breeze to cool themselves, make “white noise” to help them sleep, or give comfort when experiencing respiratory distress or “terminal air hunger.” In the home, fans can be suspended from a ceiling to circulate the air throughout a room, but not move it in any particular direction (i.e., ceiling fan), or placed next to the patient on a bedside table, in a window opening, or on a stand or tower to move air directly toward the patient.

The infection control concern is the potential for a fan to spread aerosolized human pathogens from biofilms and resuspension of dust that may settle onto the patient or environmental surfaces in the immediate vicinity of the patient. In the home, people and pets are the main contributors of particles. Air temperature, relative humidity, and turbulence are among the more important factors affecting the spread of infectious agents indoors (Ijaz et al., 2016).

It is important for home care and hospice clinicians to consider a fan as a risk factor for contributing to a home care-onset healthcare-associated infection when “in use” during patient care activities. A window-mounted air conditioning unit that blows air directly in the vicinity of the patient in the home would also be a risk factor. When making home visits with clinicians, a common “seasonal” problem identified is that the staff do not turn off an “in use” fan before removing a dressing or performing skin antisepsis. A nurse may apply a face mask to both the patient and themselves when performing care to a central venous access device or accessing an implanted port, but may not consider the direct air flow to the site from a fan that is blowing directly onto the patient. This also occurs during wound care when a nurse removes a dressing and leaves the wound bed directly exposed to air from an “in use” fan.

The blades of the fan and the surfaces of the fan’s housing unit can become visibly soiled with dust. If a fan is used in the vicinity of the home where care is rendered to an invasive device or nonintact skin, educate the caregiver on the potential infection risks and to clean the exterior blades or housing unit minimally once a month. Clean the fan using a damp cloth or, if available, a vacuum cleaner attachment to remove dust and lint from the fan and grille, as far back as can be safely reached. A more thorough cleaning requires the disassembly of the unit and should be performed following the fan manufacturer’s instructions (McGoldrick, 2017). In the home, an aide would not be expected to clean the blades of a ceiling fan present in the patient’s immediate care area for safety reasons. However, if directed, an aide could wipe down the exterior surfaces of the fan with a damp cloth to remove any dust when it is next to the patient and used for respiratory distress.

Consider a fan to be a risk factor for infection and remember to turn off any fan used in close proximity to the patient when a wound is exposed or an invasive device is being cared for.

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