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How are Nursing Homes Cleaned? Results of a Survey of Six Nursing Homes in Southeast Michigan

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Abstract

This brief report details two surveys that were conducted to better understand current cleaning practices in six nursing home facilities in southeast Michigan. Each facility's environmental services supervisor answered questions regarding cleaning policy and procedures, roles and responsibilities of the staff and the frequency of education and training; one environmental services employee from each facility answered questions addressing education and training, employer evaluation/feedback, and workload. We identify gaps in knowledge and behaviors and note substantial variations in cleaning practices.

Keywords

Infection control; Nursing homes; Environmental services; Cleaning policy and procedures; Multidrug resistant organisms

Nursing homes (NHs) are well-known reservoirs for multidrug-resistant organisms (MDROs), including methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), and antibiotic resistant gram-negative bacilli (R-GNB).^{1–3} NH residents who are colonized or infected with MDROs shed these organisms onto their skin, clothing, bedding, and nearby environmental surfaces for prolonged periods of time.^{4–7} Residents may acquire pathogens directly through contact with contaminated environmental surfaces or indirectly from touching the hands of the healthcare personnel.^{8,9} The majority of these residents remain silent carriers after acquisition; however, some develop healthcare-associated infections (HAI). These remain an important source of morbidity and mortality, with an estimated 1.7 million infections and 99,000 deaths annually.^{8,10}

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In recent years, many studies have demonstrated that proper cleaning and disinfecting of environmental surfaces can reduce pathogen burden, and may reduce the incidence of HAIs.^{4,6,8,10–12} While cleaning is essential to reduce environmental reservoirs of known pathogens that can be easily transmitted from person to person via the hands of healthcare workers, few studies examine current cleaning practices in NHs. We conducted semi-structured interviews with environmental services personnel to evaluate cleaning procedures in six NHs in southeast Michigan, to identify gaps in current practice and inform future interventions to reduce pathogen burden, lower infection rates and improve patient outcomes.

Methods

To evaluate cleaning practices in NHs, two semi-structured interviews were conducted at each participating facility: one with the environmental services (ES) supervisor and one with an ES personnel. Interview guides were developed and pilot tested among two of the NH supervisors. Individual domains and items were clarified based on their feedback. The surveys were conducted via researcher-administered interviews.

The ES supervisor survey consisted of 41 questions, divided into eight main categories which included: 1) job description, including roles and responsibilities; 2) policy and procedures; 3) education and training; 4) frequency and time spent cleaning; 5) cleaning methods and products; and 6) cleanliness assessment. The ES personnel survey consisted of 11 questions regarding demographics, assignments, training, education and evaluations. Questions were either open-ended, multiple choice, or yes/no responses. Each questionnaire was accompanied by a cover letter explaining the purpose of the study. This study was approved by the Institutional Review Board at the University of Michigan. Consent was implied by the agreement to meet and conduct the interview. Responses from the surveys were exported into Microsoft Excel at a facility level. Multiple choice and yes/no questions were coded while responses to open-ended questions were transcribed.

Results

Facility and staff characteristics

ES personnel at all six NHs are hired through a contracted cleaning company and initially trained by the ES supervisor. The supervisors we interviewed varied greatly in their length of employment (range: 2 weeks – 12 years). Each supervisor reported having an off-site district manager who visits the facility once each week, on average. Facility and staff characteristics are found in Table 1. The average number of beds at the 6 facilities was 104.5 (range 72–143) beds. The total number of ES personnel at each facility ranges from 6–18 people; the average number of personnel at each facility on a given day ranges from 2–6 people. Room assignments are variable among the facilities and range from 7 to 23 rooms per shift. Personnel spend 10–30 minutes per room during their daily routine, which extends up to 45 minutes on deep cleaning or discharge days.

Cleaning policies and practices

All six ES supervisors reported that high-touch surfaces— including doorknobs, bedrails, in and around toilet seat—are cleaned daily with disinfectant; walls, blinds and window frames

are cleaned once a week or as needed (Table 2). Techniques for cleaning high-touch surfaces included applying disinfectant directly to a cleaning cloth at five facilities, and pouring bottle to bucket immersion at one facility. Four facilities use spray bottles and one facility uses pre-moistened wipes. Cleaning carts are used at all six facilities, containing the following items: Quat disinfectant, bleach, window/glass cleaner, toilet bowl cleaner, trash bags, paper products and hand towels. Water in the mop bucket is changed after every three rooms at all facilities. Only one ES supervisor reported that his or her staff utilizes a checklist of items to be cleaned in each room. However, all six NH facilities are following the five and seven steps routine—a method of patient room cleaning and washroom cleaning that includes emptying trash, disinfecting horizontal surfaces, spot cleaning walls, dust mopping floors, and cleaning and sanitizing the commode.

All six ES supervisors reported that cleaning rooms with contact precautions is done differently; in three facilities, these rooms are cleaned before all others. All ES personnel are required to comply with contact precautions (wearing gloves, gown and mask). Bleach is the product used to clean surfaces in all facilities; time spent cleaning a contact precaution room is longer than that spent in a non-contact precautions room in five out of the six facilities (Table 2).

Staff education and training

Four of the facilities reported performing ongoing education for cleaning personnel (Table 2). Two facilities have monthly in-services; one facility has in-services every three to four months; and one facility has at least two in-services each year. This education is performed via reading materials (at four facilities) and in-service exams (at two facilities). Hands-on training about the cleaning procedures is performed in the first week of hiring a new staff member in all the six facilities; it is done periodically thereafter in three of the facilities (Table 2).

Environmental cleaning staff questionnaire

The length of employment among the surveyed ES personnel in each facility ranged from 1 to 13 years (Supplemental Table 1). When asked if their workload was fair, too heavy, or not heavy enough, four of the six personnel reported too heavy while the remaining two reported a fair workload. The initial training upon hiring was done differently for each employee (variable in duration and method used). Four ES personnel reported at least monthly subsequent training or in-services thereafter. All six ES personnel reported a visual assessment performed by the supervisor for randomly selected rooms in order to check and assess for cleanliness; four personnel reported daily checks.

Discussion

The aim of our two surveys was to compare cleaning policies at six NHs and identify gaps and areas for improvement. We found that while the role of environmental supervisors does not vary significantly across facilities, there is great variation in the responsibilities of the cleaning staff, with the number of rooms assigned to each employee ranging from 7– 23 rooms and the time spent to clean each room ranging from 10– 30 minutes. The frequency of

cleaning high touch surfaces was similar among the six facilities but with different techniques employed— e.g., facilities reported different product, time and sequence when cleaning rooms of contact precautions. The amount of training and continued education for environmental service employees varied across facilities as well as between what the supervisor and the staff reported.

A recently conducted national survey describes infection control practices at NHs throughout the US.¹³ Among the 6,700 NHs whom received the questionnaire, a median of 18 (15–22) rooms were assigned to each cleaning staff member. Different cleaning practices for rooms with contact precautions were reported in two-thirds of NHs.¹³ In another study focusing on ten NHs in California, the median number of rooms assigned per cleaning staff was 20 (12–27); and the median time spent cleaning each room on a daily basis was reported to be 21 minutes (7–45).⁷ Fifty percent of the facilities reported cleaning rooms with contact precautions last each day, with bleach used in routine and discharge cleaning in 90% of NHs.⁷ The number of rooms assigned per cleaning staff in our study was similar, though facility 5 reported the lowest range, with 7–16 rooms per employee. Additionally, the length of time reported spent cleaning each room had a broad range in our study, between 10–30 minutes.

Numerous studies demonstrate that enhanced environmental disinfection methods of high-touch surfaces decrease HAI rates; these methods include utilizing a checklist to ensure that high-touch surfaces are cleaned first, double cleaning of rooms and the addition of cleaners dedicated to high-touch surfaces.^{6,12,14} Results from our interviews are promising, as all environmental supervisors reported daily cleaning of high-touch surfaces in patient rooms. However, only one of the six NHs utilizes checklists, highlighting an area for improvement within the environmental services department.

In compliance with the Society for Healthcare Epidemiology of American (SHEA)/ Association for Professionals in Infection Control and Epidemiology (APIC) guidelines, infection control education should be provided at the initiation of employment and regularly thereafter.¹⁵ Training should include all staff, especially those providing direct resident care (Category IC). Environmental staff education as well as hands on training and feedback has been shown to improve cleaning and have positive results in both acute and long-term care settings.^{11,16,17} In a survey conducted in 429 NHs across Iowa, a majority of facilities reported holding in-services on infection control issues for their staff (68.8% held this training annually), with more than 90% of the facilities reporting education regarding isolation precautions.¹⁸ Most of these NHs indicated that they would like more of these programs, in particular a live lecture done by an expert visiting the facility. All NHs in our study complied with the initial training and education upon hire, however, only four of the facilities reported ongoing education/training thereafter. The methods and frequencies employed were variable among these four facilities; with reading materials being the most widely used method followed by inservice exams (Table 3). By comparing the answers provided by the environmental supervisors and cleaning staff members in each facility, we found discrepancies in their reported frequency of education/training.

We report a few limitations. First, measurement error is possible if a supervisor or staff interviewed misunderstood a question, forgot relevant events/behaviors, were affected by the interviewer or were shading the truth when answering. Our study is also subject to coverage error, as we only surveyed six NHs in southeast Michigan. Nonetheless our questionnaire had a high response rate and we had the advantage of observing some of the cleaning practices in person.

Conclusion

We note significant variations in environmental cleaning practices across nursing homes including variations in roles and responsibility of ES personnel, number of rooms assigned to each person, time spent cleaning each room, products used and training the employees. Findings from this study will be useful in informing interventions to enhance cleaning policies and procedures.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Highlights

- Our survey assesses the cleaning practices employed in six nursing homes in SE Michigan.
- Consistent with prior studies, there is heterogeneity in the approach to cleaning across facilities.
- Facilities would benefit from standardizing tools such as checklists for high-touch items, frequency of education for staff and specific product use.

Table 1

Nursing home facility and environmental services staff characteristics.

	Facility					
	1	2	3	4	5	6
2015 STAR rating*	5	3	5	2	3	4
Number of Certified beds	74	143	103	72	133	102
Percentage of short-stay beds	34%	8%	44%	75%	16%	8%
Total no. cleaning staff	6	14	9	7	18	13
No. staff/day	2	5	4	2	6	5
Average length of shift, hrs	8	7.5	8	8	8	7.5
No. rooms/staff member	22–23	12	25	20	7–16	18
Average time to clean room, minutes	10	20–30	10–15	10–15	20	15–20
Average time to clean room upon discharge, minutes	30	30	30	30–45	30–45	45

Note. These data are the self-reported numbers from each facility’s environmental services supervisor.

* A star rating of 1, much below average; 2, below average; 3, average; 4, above average; 5, much above average.

Table 2

Environmental services staff education and training, cleaning policies and practices.

	Facility					
	1	2	3	4	5	6
Does staff have ongoing education?	No	No	Yes	Yes	Yes	Yes
How often?	-	-	Q1 mo or PRN	Q3 mo or PRN	At least 2/year	Q1 mo
How is education performed?						
Reading materials	No	No	Yes	Yes	Yes	Yes
Video tapes	No	No	No	No	No	No
In-service exams	No	No	Yes	No	No	Yes
Computer-based	No	No	No	No	No	No
Is there hands-on training about cleaning procedures?	Yes	Yes	Yes	Yes	Yes	Yes
How often?	During first week for 2 days	During first week for 2 days	Re-train every 2 weeks or once/month	During first week for 3 days	During first week and in-services twice/year	During first week and PRN
Frequency of cleaning:						
High touch surfaces *	Once daily	Once daily	Three times daily	Once daily and PRN	Once daily	Once daily and PRN
Minimal touch surfaces **	Once daily to PRN	Once daily to PRN	Weekly	Monthly to PRN	Once daily to PRN	Monthly to Biannually
Bed side curtain	As needed	Weekly	Post discharge	In deep cleaning	Monthly	Annually
Techniques for cleaning high touch surfaces *	Disinfectant directly to cleaning cloth and spray bottle	Disinfectant directly to cleaning cloth	Pour bottle to bucket immersion and spray bottle	Disinfectant directly to cleaning cloth	Disinfectant directly to cleaning cloth and spray bottle	Disinfectant directly to cleaning cloth and spray bottle
How often deep cleaning is performed?	Only after discharge	Once/month and with new admission	Once/month	Once/month	Once-twice/month	Once/month
How cleaning rooms with contact precautions is different?	Time spent and product used	Time spent and product used	Time spent, product used and sequence among others	Product used	Time spent, product used and sequence among others	Time spent, product used and sequence among others

PRN, as needed.

* High touch surfaces include doorknobs, bedrails, in and around toilet seat

** Minimal touch surfaces include walls, blinds and window frames