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Impact of health care worker policy awareness on hand hygiene and urinary catheter care in nursing homes: Results of a self-reported survey

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Abstract

Utilizing a self-administered questionnaire in 440 health care workers (81% response rate), we evaluated the impact of health care workers policy awareness on hand hygiene and urinary catheter care in nursing homes. We show that health care workers aware of their nursing home policies are more likely to report wearing gloves and practicing hand hygiene as per evidence-based recommendations during urinary catheter care compared with those who are unaware of their facility policies.

Keywords

Nursing home; Urinary catheter; Hand hygiene

An estimated 1.3 million nursing staff provide care to 1.4 million nursing home residents (NHs) in the United States. Given rising frailty and disability,¹ nursing staff are spending more time on direct patient care, increasing opportunities for transfer of organisms. It is imperative that nursing staff are aware of and practice evidence-based infection prevention guidelines to enhance patient, visitor, and staff safety. However, studies on optimal frequency and content of infection prevention educational in-services, hands-on mentorship, and their impact on resident outcomes, particularly on high-risk residents, are lacking.

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6,7,8.

Urinary catheters (UCs) including intermittent straight catheters, condom catheters, and indwelling urinary catheters are commonly used in NHs and often lead to urinary tract infections and colonization with multidrug-resistant organisms.^{2,3} To prevent these adverse outcomes, NHs are required to design facility-appropriate infection prevention policies. Whether awareness of facility policy on hand hygiene (HH) and UC care leads to enhanced knowledge or a change in practice is unknown. Previous studies on HH⁴ reveal low implementation rates. Conversely, effective implementation of an infection prevention policy has been associated with reduced *Clostridium difficile* infection and new methicillin-resistant *Staphylococcus aureus* colonization.

Using a self-administered questionnaire, the purpose of this study was to evaluate the following: (1) whether NH health care workers (HCWs) are aware of their facility's HH and UC care policies and (2) whether awareness of facility policy pertaining to HH and UC leads to appropriate HH and UC care.

METHODS

Study sites

The study was conducted in 7 community-based NHs in Michigan, with an established infection control program. The study was approved by the University of Michigan Medical School's Institutional Review Board. Total number of beds per facility ranged from 56 to 160.⁵

Study questionnaire

A self-administered anonymous questionnaire was given to nurses and nurse aides. Based on national guidelines, questions on UC care practices were assessed using a 6-point Likert scale. Policy awareness was also assessed by asking whether HCWs knew of their NH UC care and HH policies.

Statistical analysis

We investigated whether awareness of the UC care policy is a predictor of several dependent binary variables describing appropriate HH and UC care. We used generalized estimating equations to take into account the likely correlation of observations collected among the nursing staff, which extends the use of classical logistic regression to correlated data.

RESULTS

The overall response rate was 81% of a total of 440 nurses and nurse aides in the 7 NHs. The average length of work at a facility was 9 years. Fourteen percent had worked for less than 1 year at the facility (short experience), 31% from 1 to 5 years (medium experience), and 54% for longer than 5 years (long experience). Most of the respondents (94%) were aware of the HH policy at their facility. Furthermore, 85% of respondents were aware of an indwelling catheter policy, 82% of an intermittent catheterization policy, and 60% of a condom catheter policy (Table 1). When asked questions about alcohol gel use, less than

32% answered that it is an adequate method of HH after manipulation of the catheter site, if hands were not soiled.

Impact of awareness of UC policy

Overall, a majority of respondents (>93%) reported wearing gloves and practicing HH before and after manipulation of a UC (Table 2). Respondents were more likely to use protective gloves (odds ratio [OR], 7.6 [95% confidence interval (CI): 1.9–21.1]) and practice HH before (OR, 4.2 [95% CI: 1.6–10.8]) and after a condom catheter manipulation (OR, 4.3 [95% CI: 2.1–8.9]) if they were aware of their NH policies.

Awareness of UC care policy at their institution also enhanced their evidence based UC care knowledge (Table 2). For example, the respondents (n = 294; 95%) who were aware of the policy were more likely to choose the correct answer when asked if the catheter and its bag could be disconnected to collect a urine sample in a patient with an indwelling catheter (OR, 1.5 [95% CI: 1.1–2.1]). Similarly, the respondents (n = 202; 60%) who knew of UC care policy at their NH were more knowledgeable about the fact that the urinary collection bag should be kept below the level of the bladder in a patient with a condom catheter (OR, 2.3 [95% CI: 1.1–4.6]).

DISCUSSION

NHs have multiple policies to optimize and guide the care of their residents. Whether facility policies are known to the HCWs and whether these policies impact their care is controversial. We show that awareness of HH and UC care policy does indeed lead to appropriate HH when providing UC care. For example, HCWs who were aware of their NH policy were more likely to report cleansing their hands before manipulation of a catheter site.

Confusion about appropriate HH after casual patient contact persists, with approximately 40% of respondents answering incorrectly. Confusion also persists about alcohol-based hand gel use as a method of appropriate HH, with less than 32% answering correctly. This reflects a relative delay in acceptance of alcohol hand rub in NHs.

Limitations of our study include self-reported bias (reported behavior does not necessarily correlate with daily practice) and selection bias (NHs interest in participating in study). Future studies evaluating the most effective multimodal implementation to ensure facility-wide compliance with a UC care policy including periodical reinforcement to HCWs to sustain the policy are required. Contrary to prior studies, our study shows that over 85% of HCWs had more than 1 year of experience at their current job. Their experience and longevity should be considered a strength in designing effective implementation strategies.^{9,10}

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Table 1

Demographics of study population

Characteristic	Number (%)
Beds	733
Health care workers	440
Health care workers enrolled	356 (80.9)
Years at job position	
<1	51 (14.3)
1–5	111 (31.2)
>5	194 (54.5)
Awareness of hand hygiene policy	335 (94.1)
Awareness of condom catheter care policy	202 (59.8)
Awareness of intermittent straight catheter care policy	284 (82.6)
Awareness of indwelling or suprapubic catheter care policy	294 (85.2)

Table 2

Awareness of urinary catheter care policy, hand hygiene and catheter care knowledge and practices: n = 356

Question (yes/no) dependent variable	Condom catheter		Indwelling catheter	
	% Correct, aware vs not aware	OR (95% CI)	% Correct, aware vs not aware	OR (95% CI)
I wear gloves during any manipulation of the catheter.	99.5 vs 96.2	7.6 (1.9–31.1) *	99.7 vs 98.0	___ †
I cleanse my hands with soap and water or alcohol gel before any manipulation of a catheter site.	98.5 vs 94.7	4.2 (1.6–10.8) *	96.9 vs 96.1	3.9 (1.1–14.3) *
I cleanse my hands with soap and water or alcohol gel after any manipulation of the catheter site.	98.0 vs 93.2	4.3 (2.1–8.9) *	96.2 vs 94.1	2.1 (0.7–6.9)
It is not necessary to wash hands with soap and water after casual contact with a resident who has a urinary catheter.	71.6 vs 59.9	1.7 (0.8–3.5)	65.7 vs 60.8	1.2 (0.7–1.9)
The catheter and its bag can be disconnected temporarily to collect a urine sample.	20.7 vs 15.8	1.3 (0.6–2.5)	41.3 vs 24.5	1.5 (1.1–2.1) *
The collection bag should be below the level of the bladder.	96.4 vs 91.7	2.3 (1.1–4.6) *	98.7 vs 98.0	___ †

95% CI, 95% confidence interval; GEE, generalized estimating equations; OR, odds ratio from GEE model adjusted for work experience and employee group; NA, not applicable.

* P value < .05.

† GEE-based estimates and confidence intervals not available because of high proportion of correct answers.