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Health care worker opinions on use of isolation precautions in long-term care facilities

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Abstract

To address controversies surrounding contact isolation precautions in skilled nursing facilities (SNF), we surveyed 356 nurses and nurses' aides from 7 SNFs on their opinions regarding benefits and harms of contact isolation precautions. Whereas a majority of health care workers believed that contact isolation reduces transmission of antibiotic-resistant organisms, they were also concerned about potentially harmful consequences to the SNF residents including depression and isolation.

Keywords

Health care workers; isolation practices; opinions

Residents of skilled nursing facilities (SNFs) are considered a high-risk population for colonization by antibiotic-resistant bacteria.[1,2] Furthermore, the presence of invasive devices, immunosenesence, functional impairment, and increasing prevalence of comorbid conditions may place older adults at increased risk of developing infections once colonized.

Contact isolation precautions are an increasingly used infection control intervention to reduce patient-to-patient transmission of antibiotic-resistant bacteria.[3] However, placing patients in isolation has also been associated with a higher incidence of potentially preventable adverse events, depressive symptoms, and dissatisfaction with care.[4,5] The incidence and magnitude of these adverse consequences may be intensified in the SNF setting, given that there is increased dependence on health care workers (HCWs) and that these facilities represent the residents' homes.[1,2]

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Several sources, including the recent Society for Healthcare Epidemiology of America/ Association for Professionals in Infection Control and Epidemiology, Inc, guidelines for infection control in SNFs, have discussed the issues and evidence regarding isolation precautions in SNFs.[1,2] However, few studies have addressed opinions of the staff most affected by these practices and potentially in the best position to assess possible benefits and potential consequences.[6,7] This study assessed SNF HCWs' opinions regarding use of contact isolation precautions to reduce transmission of methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant enterococci (VRE) in the residential population.

METHODS

Study design and population

The study design and population of this study have been previously described.[8] Briefly, data were collected using an anonymous, self-administered survey of nurses and nurses' aides at 7 community SNFs in southeast Michigan between August and December 2006. All participating facilities had a dedicated infection preventionist and had infection prevention policies for MRSA and VRE. However, none of the facilities regularly collected surveillance cultures, and residents were isolated only if they were actively infected with MRSA or VRE. Nurses included both registered nurses and licensed practical nurses, and the survey included HCWs on all shifts. This study was approved by the University of Michigan's Medical School Institutional Review Board.

Questionnaire design

Prior to administration, the survey was pilot tested among infection prevention committee members and nurses and nurses' aides working at 1 SNF. The survey included questions on demographics and beliefs on commonly used infection prevention practices. HCWs were asked, "Do you think that residents with MRSA should be isolated to their rooms?" They were also asked the same question for VRE. HCWs were also asked, "If you knew your patient had MRSA or VRE, would you change any of your infection control practices?" Last, respondents were asked open-ended questions regarding the potential benefits and harmful effects of contact isolation. Open-ended questions were used to determine the full range of possible responses on a less studied controversial subject from a heterogenous sample of HCWs.

Statistical analysis

All statistical analyses were performed using SAS Statistical Software, version 9.1 (SAS Corporation, Cary, NC). Univariable statistics (eg, mean, median, and frequencies) were used to assess the distribution of data for each variable. The χ^2 tests were used to compare differences between groups with statistical significance defined as $P < .05$.

Responses to the open-ended survey questions regarding the potential benefits of contact isolation precautions were grouped into specific themes: (1) no benefit, (2) benefits to residents, (3) benefits to staff, and (4) benefits to the facility. For example, if a respondent stated that one of the potential benefits of contact isolation precautions was to protect other residents from acquiring MRSA, this was included in the theme of benefits to residents. Similarly, open-ended responses to survey questions regarding the potential harms of contact isolation precautions were grouped as follows: (1) no harm, (2) psychosocial harms, (3) patient safety-related harms, and (4) health-related harms. For example, if a respondent answered that a potential harm of contact isolation precautions was depression or social isolation, this was included in the theme of psychosocial harms.

RESULTS

Of the 440 HCWs who received the survey, 356 (81%) responded, of which 114 (32%) were nurses and 239 (68%) were nurses' aides; 3 were missing job titles. Regarding whether residents with MRSA or VRE should be isolated in their rooms, 61% responded that MRSA-positive residents should be isolated, and 41% responded that VRE-positive residents should be isolated (Table 1). However, only 36% responded that they would change any of their infection prevention practices if they knew a resident was colonized or infected with MRSA or VRE. Interestingly, nurses' aides were significantly more likely than nurses to respond that residents should be isolated for MRSA (66% vs 52%, respectively, $P < .01$) but significantly less likely to respond that residents should be isolated for VRE (38% vs 47%, respectively, $P < .01$). Nurses' aides were also significantly more likely to state that they would change their infection control practices if they knew that a resident was MRSA or VRE positive: 39% vs 31%, respectively ($P < .01$).

Benefits of isolation

Approximately 74% (261/356) of respondents provided comments regarding the potential benefits of isolation for MRSA and approximately 49% (175/356) commented on the potential benefits of isolation for VRE. Respondents who answered "do not know" were excluded from the analyses. Regarding the potential benefits of isolation for MRSA, 152 respondents provided 1 comment, 79 provided 2 comments, and 30 provided 3 comments. We then restricted each HCW's responses such that multiple comments under the same theme were only counted once. For example, if 1 respondent provided 2 responses, but both related to reducing/prevention transmission, only 1 of these comments was included. If a respondent provided 2 comments and each fell under a different theme, both were included. Using this methodology, 88% (230/260) of respondents who provided at least 1 comment responded that isolation prevents transmission of MRSA. On the potential benefits of isolation for VRE, 125 provided 1 comment, and 25 provided 2 comments. As a result, 150 of 175 (86%) individuals responded that isolation prevents transmission of VRE. When these data were stratified by occupation, nurses' aides were significantly more likely to respond that isolation for MRSA prevented transmission (91% vs 82%, respectively, $P < .05$) but not significantly more likely to respond that isolation for VRE prevented transmission (86% vs 85%, respectively, $P = .82$). These data and other responses regarding the potential benefits of isolation are displayed in Table 2.

Harmful effects of isolation

Approximately 67% (239/356) responded to questions on the potential harmful effects of isolation for MRSA and 44% (156/356) on the potential harmful effects of isolation for VRE (Table 2). For MRSA, using the methodology describe above in quantifying the stated potential benefits of isolation, we restricted responses such that multiple comments under the same theme only were counted as a single comment. As a result, 97% of respondents commented that isolation for MRSA could have some harmful psychosocial effects including confusion (23% of respondents), depression (86% of respondents), and self-esteem (22% of respondents). In addition, 17% responded that isolation for MRSA could adversely affect the residents' health, and 5% responded that isolation for MRSA could affect resident safety.

Regarding the potential harmful consequences of isolation for VRE, 99% responded that isolation could have some harmful psychosocial effects including confusion (20%), depression (87%), or affecting the residents' dignity or self-esteem (18%). In addition, 15% responded that isolation for VRE could adversely affect residents' health, and 2% responded that isolation for VRE could affect resident safety. For both MRSA and VRE, there were no

significant differences between whether nurse and nurses' aides believed patient isolation was associated with potential psychosocial harms ($P = .87$ and $P = .93$, respectively).

DISCUSSION

These data suggest that, although many HCWs in the SNFs thought that residents with MRSA and VRE should be placed on isolation precautions, considerably less would actually change their infection control practices when providing care for these residents. We observed that nurses' aides were more likely than nurses to state that isolation precautions should be used for MRSA-positive residents. They were also more likely to report that they would change their infection control practices if they knew a resident was MRSA positive. Furthermore, although many HCWs thought that isolation precautions prevented transmission, many were also concerned about several potential adverse outcomes in older residents, especially the potential for isolation to cause depression.

Nurses and nurses' aides are the primary care providers in SNFs and have intimate knowledge of the needs of the residents, as well as the factors that could impact their needs. Even though infection prevention and control practices, such as isolation precautions, could serve as one of these factors, few studies have surveyed HCWs on their knowledge and opinions of infection control practices in this setting.[6,7] Our findings, which suggest that 97% of HCWs expressed concerns regarding potential adverse outcomes of isolation precautions, reinforce the need for alternative strategies to prevent transmission of antibiotic-resistant organisms in this setting. These strategies could include targeting contact isolation practices to only those at the highest risk of acquisition and transmission of MRSA and VRE, effective antibiotic stewardship programs, emphasis on universal hand hygiene, and diligent use of barrier precautions such as gloves and gowns when caring for high-risk residents.

Contact isolation precautions likely play an important role in reducing transmission of multidrug resistant organisms and curtailing outbreaks of pathogens.[3] Many organisms including MRSA and VRE are thought to be primarily transmitted via patient-to-patient transmission, often on the hands and/or clothing of HCWs. Thus, use of isolation precautions is for the most part an accepted intervention in acute care settings, and their use in SNFs is increasing.[9] However, previous studies in the acute care setting have reported that there is potential for compromising clinical care as a result of isolation practices.[4,5] These studies suggest that those isolated for infection or colonization with antimicrobial-resistant organisms have fewer vital sign measurements and physician visits when compared with patients who are not in contact isolation. Patients in isolation also tend to have greater dissatisfaction with their care while in the hospital. Although similar studies in SNFs are lacking, older adults are potentially at an even greater risk of adverse psychosocial consequences as a result of isolation practices.

This study has potential limitations. First, the survey was self-administered, and, thus, there is the possibility of response bias (ie, respondents may have been different than nonrespondents). However, 81% of those who received the survey completed it, and, to preserve confidentially, the self-administered, anonymous nature of the survey was clearly the best option. Second, we did not have the data to thoroughly explore explanations for why respondents provided certain answers. For example, why more HCWs responded that residents with MRSA should be isolated compared with those with VRE. Higher prevalence and attention to MRSA may account for some of these differences. Given the controversial nature of this topic and the paucity of data thus far that considers HCWs opinions, we believe these data have value. Our data provide themes for a more comprehensive study

utilizing qualitative and quantitative methods and involving different groups of respondents including nurses, aides, administrators, residents, and families to further inform the policy.

In conclusion, HCWs in SNFs are an important group in which to assess the potential benefits and harms of infection control interventions in the long-term care setting. In this study, nurses and nurses' aides showed limited support and considerable concern regarding the use of isolation precautions. It is important to weigh these potentially adverse consequences to the benefits of contact isolation precautions prior to implementation.

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Table 1

Responses regarding isolation for MRSA and VRE

Question	All, n (%)*	Nurses n (%)*	Nurses' aides, n (%)*	*P* value
Do you think residents with MRSA should be isolated in their rooms?	216 (61)	59 (52)	157 (66)	<.01
Do you think residents with VRE should be isolated in their rooms?	145 (41)	54 (47)	91 (38)	<.01
If you knew your resident had MRSA or VRE, would you change any of your infection control practices?	129 (36)	35 (31)	94 (39)	<.01

HCW, health care workers; *MRSA*, methicillin-resistant *Staphylococcus aureus*; *VRE*, vancomycin-resistant enterococci.

*Number (%) of HCWs with an affirmative response.

Table 2

Responses regarding the potential benefits and harms of isolation for MRSA and VRE

	Potential benefits	All (n = 260), n (%)	Nurses (n = 87), n (%)	Nurses' aides (n = 173), n (%)	*P* value
MRSA (n = 261)	To prevent/reduce transmission	228 (88)	71 (82)	157 (91)	.03
	To protect the patient	40 (15)	11 (13)	29 (17)	.39
	To pass inspection	7 (3)	2 (2)	5 (3)	.78
	To protect staff/encourage infection control practices	27 (10)	7 (8)	20 (12)	.38
VRE (n = 175)	To prevent/reduce transmission	150 (86)	62 (86)	88 (85)	.90
	To protect the patient	23 (13)	10 (1)	13 (3)	.81
	To pass inspection	0 (0)	0 (0)	0 (0)	– –
	To protect staff/encourage infection control practices	14 (8)	4 (1)	10 (4)	.32
	Potential harms	**All (n = 239), n (%)**	**Nurses (n = 87), n (%)**	**Nurses' aides (n = 152), n (%)**	
MRSA	Psychosocial effects (any)	233 (97)	85 (98)	148 (97)	
	Confusion	54 (23)	17 (20)	37 (24)	
	Depression	206 (86)	76 (87)	130 (86)	
	Affects self-esteem	53 (22)	16 (18)	37 (24)	
	Patient safety effects (eg, HCW neglect)	12 (5)	2 (2)	10 (7)	
	Adversely affecting health (functional decline, weight loss)	40 (17)	13 (15)	27 (18)	
VRE	Psychosocial effects (any)	154 (99)	72 (99)	82 (99)	
	Confusion	23 (15)	10 (14)	13 (16)	
	Depression	144 (92)	68 (93)	76 (92)	
	Affects self-esteem	27 (17)	12 (16)	15 (18)	
	Patiently safety effects (eg, HCW neglect)	6 (4)	1 (1)	5 (6)	
	Adversely affecting health (functional decline, weight loss)	21 (13)	11 (15)	10 (12)	

HCW, health care workers; *MRSA*, methicillin-resistant *Staphylococcus aureus*; *VRE*, vancomycin-resistant enterococci.