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National Survey of Infection Preventionists: Policies for Discontinuation of Contact Precautions for Methicillin-resistant *Staphylococcus aureus* (MRSA) and Vancomycin-Resistant Enterococcus (VRE)

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BACKGROUND

Methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant enterococcus (VRE) are endemic in hospital settings. The Centers for Disease Control and Prevention (CDC) recommend placement of patients with a history of MRSA-and/or VRE-colonization on Contact Precautions (CP).^{1,2} While placement in private rooms is preferred, cohorting is an acceptable, common scenario in semi-private room facilities. Although MRSA and VRE colonization clear spontaneously, no national guidelines exist to inform when or how CP may be discontinued.^{1,2} We conducted a nationwide survey to gain insight into institutional CP practice.

METHODS

We electronically surveyed members of the Association for Professionals in Infection Control and Epidemiology (APIC, Partners Human Research Committee [P2010-001336]. Participants received a link to the web-based survey on July 5, 2011, which remained active for one month. Study data were collected and managed using Research Electronic Data Capture (REDCap).³

Survey questions covered facility and respondent characteristics, infection control policies, and CP discontinuation policies. Details of discontinuation policies included time since last positive culture prior to eligibility for CP discontinuation, use of microbiological assays to confirm clearance, and permissiveness of concurrent antimicrobial use. For policies requiring microbiological confirmation, respondents were queried regarding the screening site(s), and the timing and number of specimens collected. We analyzed variation in

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CONFLICT OF INTEREST

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protocols by examining the frequency of respondents with shared protocol elements as a proportion of all reported policies.

RESULTS

Selected institutional characteristics and reported infection control policies are provided (Table 1). Of 11,368 APIC members emailed, 3,057 responded (26.9%), among whom 2,580 (84.4%) self-identified as working primarily in inpatient settings. Most reported a mix of private and semi-private, or all semi-private, accommodations (1,830/2,580, 70.9%); 1,544/1,830 (84.4%) reported cohorting MRSA or VRE patients (data not shown).

The majority of respondents reported institutional policies allowing for CP discontinuation in patients with a history of MRSA (1,873/2,580; 72.6%) or VRE (1,457/2,580; 56.5%). A minority of respondents reported a policy for actively screening patients for these purposes.

Characteristics of MRSA CP discontinuation policies

Of the 1,873 respondents reporting the existence of a MRSA CP discontinuation policy, 460 (24.6%) indicated that eligibility for screening depended on time since last positive MRSA culture. For policies where time was a consideration, 25.7% reported waiting times of <6 months, and 72.8% reported waiting 6 months prior to screening.

The majority of respondents (1,465/1,873; 78.2%) reported a policy that required microbiological confirmation of clearance of MRSA colonization. Analysis of MRSA CP discontinuation policies revealed that clearance was based on: the timing and number of specimens collected, the specimen collection site, and the time elapsed since last positive culture. The combination of reported requirements yielded 64 distinct MRSA CP discontinuation strategies, only two of which accounted for 5% of respondents. These two policies both required 6 months to elapse prior to screening and used a single sample from either the nares or nares in addition to the original infection site.

Characteristics of VRE CP discontinuation policies

Of the 1,457 respondents reporting the existence of a VRE CP discontinuation policy, 320 (22.0%) indicated that the policy considered time since last positive VRE culture when determining CP discontinuation eligibility. For policies where time was a consideration, 31.3% reported waiting <6 months, while 66.6% reported waiting 6 months since most recent positive culture prior to screening.

The majority of respondents reported the existence of an institutional policy requiring microbiological confirmation of VRE clearance (1,122/1,457; 77.0%). Analysis of VRE CP discontinuation policies revealed that clearance was based on: the timing and number of specimens collected, the collection site, and the time elapsed since last positive culture. The combination of reported requirements yielded 48 unique strategies, with four strategies accounting for >5% of respondents each. A single strategy requiring 6 months since prior positive culture and three specimens obtained from both the rectum and original infection site at one-week intervals was reported by 17.2% of respondents.

DISCUSSION

This survey highlights the substantial variation in CP discontinuation policies that occurs in the absence of national guidance. Though most respondents indicated the existence of MRSA/VRE CP discontinuation policies at their institutions, the majority did not actively screen patients for CP discontinuation. In the absence of an active screening program,

formerly colonized patients may inappropriately remain on CP indefinitely, even in institutions with discontinuation policies.

CP results in fewer patient-provider interactions, possibly leading to delays in care or reductions in the quality of care.⁴ In settings that allow cohorting, patients who have cleared colonization (but have not been tested and confirmed as such) may be falsely cohorted with others who have active infection or colonization, thus risking re-acquisition.^{5,6} From the hospital perspective, misclassification of CP patients wastes resources in the form of gowns and gloves, personnel time spent cleaning rooms and donning and doffing protective equipment, and in reductions in bed availability and delays in bed assignment due to cohorting requirements.^{7–9}

Due to the anonymous nature of the survey, we were unable to assess whether respondents to our survey differed from non-responders. It is also possible that more than one response per institution was included. Although our response rate of 26.9% was less than optimal, this survey provides insights into the diverse set of institutional policies in the absence of national guidelines.

Given the paucity of data to inform evidence-based guidelines, further research on the most effective strategies for discontinuation of CP in MRSA/VRE patients is needed. Such research could inform national guidelines to address the growing pool of colonized and resource-intensive patients.

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Table 1**Respondent Institutional Characteristics and Infection Control Policies^a**

Institution Characteristics (N=2,580)	
Location	
Rural/small town (population <20,000)	679 (26.3%)
Town (population 20,000–49,999)	376 (14.6%)
Urban (population 50,000)	1506 (58.4%)
Licensed Beds	
<400 bed	1991 (77.2%)
400 beds	584 (22.6%)
Bed Organization	
All single occupancy	734 (28.4%)
All double occupancy	59 (2.3%)
Mix of single and double occupancy	1771 (68.6%)
MRSA Infection Control Policies	
Is there a policy that allows for discontinuation of CP for MRSA? (N=2,580)	
Yes	1873 (72.6%)
No	640 (24.8%)
Do you actively screen for the purposes of discontinuation of MRSA CP? (N=2,580)	
Never	809 (31.4%)
Sometimes	1094 (42.4%)
Always	629 (24.4%)
Does your MRSA CP policy incorporate any of the following components? (N=1,873) *	
Time since last positive culture before screening eligibility	460 (24.6%)
Use of microbiological assays to confirm clearance	1465 (78.2%)
Permissiveness of concurrent or recent antibiotic use	616 (32.9%)
Other/none of the above	377 (20.1%)
Details of MRSA CP policies incorporating use of microbiological assays(N=1,465)	
Time since last positive culture before screening eligibility (N=460)	
<6 months	118 (25.7%)
6 months	335 (72.8%)
Body site(s) of screening (N=1,465)	
Nares	420 (28.7%)
Nares plus original site of infection	668 (45.6%)
Other	367 (25.1%)
Number of negative specimens required to confirm clearance (N=1,465)	
1	466 (31.8%)
2	444 (30.3%)
3	503 (34.3%)
>3	27 (1.8%)
Time interval between specimen collection (N=974)	
24 hours	333 (34.2%)

48 hours	215 (22.1%)
1 week	348 (35.7%)
>1 week	55 (5.7%)

VRE Infection Control Policies

Is there a policy that allows for discontinuation of CP for VRE? (N=2,580)

Yes	1457 (56.5%)
No	973 (37.7%)

Do you actively screen for the purposes of discontinuation of VRE CP? (N=2,580)

Never	1284 (49.8%)
Sometimes	861 (33.4%)
Always	327 (12.7%)

Does your VRE CP policy incorporate any of the following components? (N=1,457) *

Time since last positive culture before screening eligibility	320 (22.0%)
Use of microbiological assays to confirm clearance	1122 (77.0%)
Permissiveness of concurrent or recent antibiotic use	412 (28.3%)
Other/none of the above	253 (17.4%)

Details of VRE CP policies incorporating use of microbiological assays(N=1,122)

Time since last positive culture before screening eligibility (N=320)

<6 months	100 (31.3%)
6 months	213 (66.6%)

Body site(s) of screening (N=1,122)

Rectum	281 (25.0%)
Original site of infection	201 (17.9%)
Rectum plus original site of infection	628 (56.0%)

Number of negative specimens required to confirm clearance (N=1,122)

1	212 (18.9%)
2	180 (16.0%)
3	691 (61.6%)
>3	24 (2.1%)

Time interval between specimen collection (N=895)

24 hours	132 (14.8%)
48 hours	110 (12.3%)
1 week	597 (66.7%)
>1 week	41 (4.6%)

^a Respondents reporting “I don’t know” or not responding to a particular question are not provided, and thus the summed percentages may not equal 100%.

* This question was asked in a “check all that apply” format, so summed percentages may exceed 100%.

MRSA: methicillin-resistant *Staphylococcus aureus*; VRE: Vancomycin-resistant enterococcus; CP: Contact Precautions