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Major article

Impact of rapid screening for discontinuation of methicillin-resistant *Staphylococcus aureus* contact precautions

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Key Words:
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Background: A history of methicillin-resistant *Staphylococcus aureus* (MRSA) is a determinant of inpatient bed assignment.

Methods: We assessed outcomes associated with rapid testing and discontinuation of MRSA contact precautions (CP) in a prospective cohort study of polymerase chain reaction (PCR)-based screening in the Emergency Department (ED) of Massachusetts General Hospital. Eligible patients had a history of MRSA and were assessed and enrolled if documented off antibiotics with activity against MRSA and screened for nasal colonization (subject visit). PCR-negative subjects had CP discontinued; the primary outcome was CP discontinuation. We identified semiprivate rooms in which a bed was vacant owing to the CP status of the study subject, calculated the hours of vacancy, and compared idle bed-hours by PCR results. Program costs were compared with predicted revenue.

Results: There were 2864 eligible patients, and 648 (22.6%) subject visits were enrolled. Of these, 65.1% (422/648) were PCR-negative and had CP discontinued. PCR-negative subjects had fewer idle bed-hours compared with PCR-positive subjects (28.6 ± 25.2 vs 75.3 ± 70.5; $P < .001$). The expected revenues from occupied idle beds and averted CP costs ranged from $214,160 to $268,340, and exceeded the program costs.

Conclusion: A program of targeted PCR-based screening for clearance of MRSA colonization resulted in expected revenues and decreased CP costs that outweighed programmatic costs.

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Despite a decline in infections with methicillin-resistant *Staphylococcus aureus* (MRSA) nationally,[1] the number of MRSA-colonized patients is growing.[2] Once individuals are identified as being colonized or infected with MRSA, the Centers for Disease Control and Prevention (CDC) recommends that such patients be placed in private rooms or cohorted with other MRSA-colonized patients if private rooms are not available, and that contact precautions (CP) be implemented.[3] Individuals can clear colonization spontaneously,[4-7] and recent studies have suggested that the duration of colonization may be shorter than previously thought[8]; however, in the absence of national guidelines for CP discontinuation,[9] the pool of patients who have cleared colonization continues to grow without a standardized approach for documenting clearance and discontinuing CP.

Effective and efficient strategies for identifying patients who are no longer colonized are needed to mitigate both the clinical consequences of CP and the costs of inappropriate CP implementation, including the direct costs of CP (eg, gowns, gloves, dedicated medical equipment) and increased provider time to comply with CP. Furthermore, patients requiring CP may adversely affect hospital revenues when CP results in decreased bed availability.

The effectiveness of any screening program aimed at identifying patients who have cleared colonization will depend on timely identification of appropriate patients, test characteristics including turnaround time, and how quickly changes to infection control designation can be implemented. Rapid diagnostics using polymerase chain reaction (PCR) have demonstrated efficacy in reliably identifying patients who have cleared MRSA colonization.[10] We report on a prospective study of outcomes in patients screened for persistent colonization before hospital admission with discontinuation of MRSA CP for those with negative screening results.

METHODS

Overview

The MRSA Ambulatory Pilot Project (MAPP) is a prospective cohort study of patients with a history of MRSA infection or colonization. Enrolled subjects had a commercial PCR screen to assess for persistent MRSA colonization. Those who were PCR-negative had MRSA CP discontinued.

Setting and study population

Patients with a history of a MRSA-positive isolate detected not more than 90 days at the time of a visit to the Massachusetts General Hospital (MGH) Emergency Department (ED) between June 1, 2012, and December 31, 2013, were eligible for the study. The program delivered text page alerts to ED staff providing notification of patient eligibility 24 hours a day, 7 days a week. Between June 1, 2012, and January 29, 2013, alerts were delivered to the ED triage nurse. Between January 30, 2013, and December 31, 2013, owing to a change in work flow, text page alerts were directed to an ED clinical research coordinator hired by the program to enroll subjects.

Enrollment required performance of an assessment screen. Subjects were enrolled in this assessment screen who reported no exposure to selected antibiotics with MRSA activity in the preceding 48 hours (later confirmed by chart review) and had a nasal surveillance swab obtained. Demographic, clinical, and hospital operations data were collected, including age, sex, race, admission source, MRSA history, and, for those admitted, length of stay (LOS). For admissions within 30 days of screening, room assignment was further identified as either intensive care unit (ICU), which has exclusively private rooms, or non-ICU, which includes a mix of semiprivate and private rooms (approximately 60%:40%). Admitting location was identified as a private or semiprivate room. Enrolled subjects screened as PCR-positive during the study who returned to the ED at least 90 days from the positive result were eligible for reenrollment. Similarly, subjects excluded at one visit who later returned and met enrollment criteria were eligible for study entry at the later visit.

Screening procedure and laboratory methods

Specimens were collected with the Cepheid Collection Device (Copan, Murietta, GA) and processed using the Xpert MRSA real-time PCR assay on the GeneXpert platform (Cepheid, Sunnyvale, CA).

Discontinuation of MRSA CP

PCR results were reviewed by trained staff who discontinued MRSA CP weekdays from 9 am to 5 pm between June 1, 2012, to January 30, 2013, with expanded hours from 5 pm to 10 pm between February 1, 2013, and December 31, 2013. Results were not acted on during the overnight hours and on weekends; outside of the staffed hours described, MRSA CP remained in effect until the next business day.

Primary outcome

The primary study outcome was the proportion of enrolled subject visits with CP discontinuation. For those subject visits resulting in admission, we also considered time to CP discontinuation, calculated as the time from specimen collection to CP discontinuation. In cases in which the collection time was not documented, the time stamp reverted to arrival time in the microbiology laboratory.

Secondary outcomes

For enrolled subjects admitted within 30 days of the PCR screen, hours to bed arrival was designated as the time between ED arrival and inpatient bed arrival (inclusive of ED observation bed arrival), using electronic time stamps for each event. Direct admissions that bypassed the ED were excluded from this calculation.

To examine the impact of discontinuation of MRSA CP on bed availability, we obtained hourly bed occupancy data from MGH Admitting Services, which included time stamps for bed occupancies and vacancies, and reasons for vacancy (ie, need for MRSA, vancomycin-resistant enterococcus [VRE], or MRSA/VRE CP). An internal audit was conducted comparing the reasons documented by Admitting Services to those documented by Infection Control staff. Concordance between the 2 groups was >85% for MRSA, VRE, and combined MRSA and VRE.

When subjects were in semiprivate rooms and the paired bed remained vacant as a result of CP, these beds were identified as "idle" beds, and the number of idle bed-hours attributed to the enrolled subject was determined. Not every admission resulted in an idle bed. The number and proportion of admissions with associated idle bed-hours, and the mean idle bed-hours attributable for those admissions, are reported. Idle bed-hours were summed across all 3 CP reasons owing to the fact that removal of an MRSA flag from a VRE co-colonized subject would result in a transfer to the VRE-alone colonized pool. Admissions occurring within 30 days of multiple screening visits for the same subject were assigned to the screening visit closest to the admission. This assignment occurred only when a subject was first documented on antibiotics and not enrolled, on a subsequent visit was documented off

antibiotics and enrolled, and had an admission within 30 days of both visits.

Program cost and revenue analysis

The costs of the screening program, costs of implementation of CP, and bed revenue were identified (Table 1). The direct costs of the screening program included tests and swabs (inclusive of tests performed as part of incorrect assessment), as well as personnel time, inclusive of staffing within the ED, Microbiology Laboratory, and Infection Control Unit. Full-time equivalent (FTE) portions were used, including salary and fringe benefits, based on data provided by MGH Human Resources.

Calculations of direct expenditures for CP, inclusive of gowns, gloves and dedicated stethoscopes per admission, were based on internal data provided by MGH Materials Management. The number of each item used per admission was based on estimates from the literature.[11]

For PCR-negative subjects, the daily cost of CP was multiplied by the mean time to discontinuation of CP, divided by 24 hours, to account for the time during which the subject was still on MRSA CP. Once per-admission CP costs for PCR-negative and PCR-positive subjects were calculated, these costs were multiplied by the number of PCR-negative and PCR-positive admissions, respectively, to calculate the total cost of CP for the cohort. This approach allowed for the calculation of averted CP costs due to the program equal to the number of PCR-negative admissions multiplied by the difference in CP cost for PCR-positive and PCR-negative admissions.

To calculate the projected revenues from filling of idle beds owing to a reduction in MRSA colonized patients as part of the program, we first calculated the expected number of idle beds in the absence of the program as follows: we multiplied the observed proportion of admissions with idle beds in the PCR-positive group by the total number of admissions to approximate the number of admissions that would be associated with idle beds in the absence of any screening program. This calculation produced the number of admissions expected to have associated idle beds. This value was multiplied by the mean idle bed-hours for PCR-positive subjects, divided by 24 hours to convert to idle bed-days. Next, the idle bed-hours in the PCR-negative subjects were similarly converted to idle bed-days. The difference between the number of idle bed-days in the absence of the program and the idle bed-days observed in the PCR-negative group was considered the averted idle bed-days due to the program. To account for the fact that discontinuation of MRSA CP does not always result in a previously idle bed being filled, we multiplied the resulting averted idle bed-days due to the program by representative hospital occupancy levels ranging from 75%[12] to 99% (mean occupancy for MGH is approximately 83%).

The mean net revenue per patient-day was calculated using data from the Council of Teaching Hospital and Health Systems (COTH) as follows. The mean case mix index-adjusted hospital price per patient-day for the median hospital was discounted by the median hospital discount rate, resulting in the mean daily revenue per patient-day.[13] The mean net revenue per patient-day was multiplied by the number of occupied idle beds, resulting in the expected net revenue across a range of occupancies.

The total projected revenue was calculated as the sum of revenue from occupied idle beds and averted CP costs. The projected program surplus was calculated as the net revenue minus costs of program implementation. These calculations were restricted to ED-based admissions within 30 days of the appropriate screen and did not account for future visits after that time frame.

Table 1
Costs of screening program, costs of CP implementation per admission, and revenues per occupied bed

Component costs of screening program*	Cost, $
Materials (19 mo)	
Tests ($42/cartridge)	31,160
Swabs ($0.70/swab)	520
Reimbursement ($52/test)	(15,290)
Personnel	
Emergency department staff (0.3 FTE, 11 mo)	22,550
Medical technologist staff (0.05 FTE, 19 mo)	3840
Program manager (0.5 FTE, 19 mo)	81,530
Clinical manager (0.1 FTE, 19 mo)	31,130
Subtotal, materials (net reimbursement)	16,400
Subtotal, personnel	139,040
Total program costs	155,440
Costs of CP implementation per admission†	
PCR-negative subject	20
PCR-positive subject	180
Revenues per occupied bed, 2012 US$‡	
Daily revenue	1900

*Costs for reagents and swabs were based on total screens and were offset by reimbursement by third-party payors; personnel costs were fixed for the program based on allocated FTEs and were calculated over the 19 months of the program. Total reimbursement was calculated by multiplying the mean reimbursement by the number of tests resulting in a line-level payment to the institution; tests that were eventually rolled into a lump-sum payment to the institution were not included.

†Costs based on internal data provided by MGH Materials Management (gown, $0.30/use; gloves, $0.08/pair; stethoscope, $3.41/item). Using estimates of the number of patient–provider interactions from Morgan, 2013, the total number of gowns and gloves per day were calculated. We assumed one stethoscope used per PCR-negative admission and 2 per PCR-positive admission. Daily costs of CP implementation were then multiplied by the mean LOS for PCR-positive subjects to generate the per-admission costs of CP. PCR-negative patients' CP costs were restricted to the mean time period before discontinuation of CP.

‡Mean net revenue per available bed was calculated as follows: the mean case mix index-adjusted hospital price per patient-day for the median hospital in 2012 was discounted by the median hospital discount rate over the same time period, resulting in the mean daily revenue per occupied bed.

Statistical analysis

Demographic, clinical, and admission characteristics were compared using the 2-sided independent-samples t test or the χ^2 test, as appropriate.

Human subjects research

The research presented was reviewed and approved by the Partners Human Research Committee (2011P001650).

RESULTS

Subject eligibility and assessment

A total of 2864 subject visits were eligible for the screening program (Fig 1). A large proportion of these (69.1%; 1978 of 2864) were never assessed for enrollment or received improper assessment and thus were excluded from the study. Approximately one-third of the subject visits assessed had documented concurrent antibiotic exposure and were excluded.

Subject characteristics

There were no significant differences in age, sex, arrival source, or time since most recent MRSA isolate between enrolled subjects and patients who were never assessed or were assessed incorrectly (Table 2). Comparing enrolled subjects and patients excluded because of antibiotic exposure, there were no significant

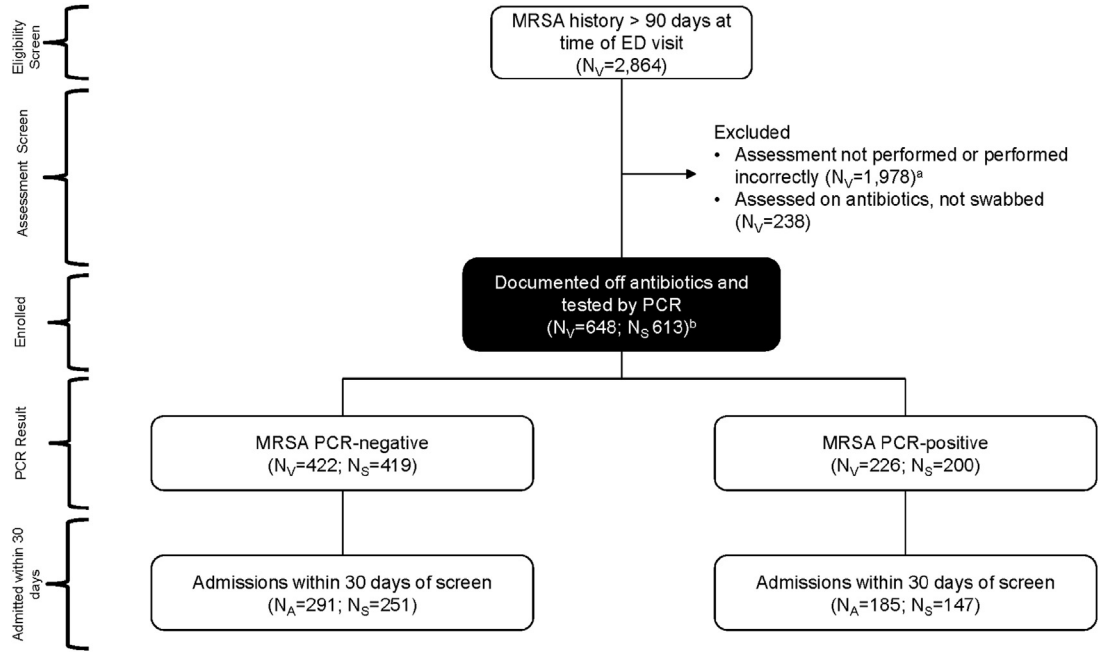

Fig 1. Subject flow diagram. n_v, number of subject visits; n_s, number of subjects; n_A, number of admissions within 30 days of screening. [a]Assessment not performed or performed incorrectly was categorized as no antibiotic documentation, not swabbed (n = 1832), no antibiotic documentation and swabbed (n = 61), documented on antibiotics and swabbed (n = 11), documented off antibiotics and not swabbed (n = 42), documented off antibiotics incorrectly and swabbed (n = 22), or incorrectly documented antibiotics and not swabbed (n = 10). [b]A subset of the number of subjects documented off antibiotics and screened by PCR were enrolled multiple times and found to be PCR-negative and PCR-positive during different enrollments (n = 6).

differences in age or sex, but those in the latter group were more likely to have arrived via transfer from another facility ($P < .001$) and to have a more recent MRSA isolate ($P = .04$). Among enrolled subjects, PCR-negative subjects tended to be younger and to have a longer elapsed time since both MRSA isolate and original colonization ($P < .001$).

CP discontinuation

Among the 648 subject visits enrolled, 422 (65.1%) resulted in a negative PCR result and discontinuance of MRSA CP. The mean time to CP discontinuation was 16.8 ± 20.1 hours (data not shown).

Admission characteristics and idle beds

A total of 476 admissions occurred within 30 days of screening in the enrolled subjects (Table 3). There were 291 PCR-negative admissions among 251 subjects, for a mean of 1.2 ± 0.4 admissions per subject. Among the 185 PCR-positive admissions, 147 subjects had a mean of 1.3 ± 0.5 admissions. Mean LOS was shorter for PCR-negative admissions, but the difference did not reach statistical significance (5.5 ± 6.6 days vs 6.6 ± 7.4 days; $P = .09$). Similar proportions of both groups were admitted to ICUs (6.9% vs 8.6%; $P = .61$). Private rooms were used less frequently for PCR-negative admissions (160 of 291 vs 122 of 185; $P = .02$). Mean hours-to-bed arrival did not differ by PCR result (9.1 ± 5.7 hours vs 9.7 ± 6.4 hours; $P = .29$). Forty-five (15.5%) PCR-negative admissions were associated with idle beds, compared with 35 (18.9%) PCR-positive admissions ($P = .40$). Mean idle bed-hours for PCR-negative admissions were 28.6 ± 25.2. Mean idle bed-hours were significantly higher for PCR-positive admissions (75.3 ± 70.5; $P < .001$). Total idle bed-days were 54 for PCR-negative admissions and 110 for PCR-positive admissions.

Program cost and revenues

The costs of the program over the study period totaled $155,440 (Table 4). The reduction in CP implementation costs attributable to discontinuation of MRSA CP in 291 PCR-negative admissions was $44,840. The predicted idle bed days in the absence of the program was $[((291 + 185) \times 0.189) \times (75.3/24)] = 282$, resulting in an estimated 119 available bed-days due to the program. At occupancy rates ranging from 75% to 99%, this difference was estimated to result in 89-118 additional occupied beds, with additional expected revenues from filled idled beds ranging from $169,330 to $223,510. Combined additional revenues and averted CP costs from the program ranged from $214,160 to $268,340 and exceeded the program cost at each level of occupancy (surplus range, $58,720-$112,910).

DISCUSSION

Using MRSA history >90 days and arrival in the ED as eligibility criteria, using a validated and highly sensitive assay, the majority of enrolled subjects were found to be no longer colonized with MRSA. The frequency of CP discontinuation among those screened by PCR was consistent with previous studies.[5,7,8,10] We demonstrated the operational effectiveness of rapid screening for discontinuation of MRSA, reduction in CP costs, and increased availability of idle beds. Despite the initial investment to create targeted screening program, the estimated averted costs related to CP implementation and projected additional revenue from use of idle beds demonstrate the value of the program.

A growing body of evidence highlights the negative consequences of CP, including longer waiting times for hospital bed assignment,[14] decreased provider interactions,[11] potentially more preventable adverse events and dissatisfaction with care,[15,16] increased risks of inappropriate antibiotic use,[17] and potential adverse psychological affects.[18-20] These findings suggest that

Table 2
Demographic and clinical characteristics of subject visits, by enrollment and exclusion status

Characteristic	Enrolled subject visits			Excluded subject visits	
	All enrolled ($n_V = 648$)	MRSA PCR-negative ($n_V = 422$)	MRSA PCR-positive ($n_V = 226$)	Assessment not performed or performed incorrectly ($n_V = 1978$)*	Assessed on antibiotics, not swabbed ($n_V = 238$)
Age, y, mean ± SD	58 ± 19	55 ± 19	63 ± 19	57 ± 18	60 ± 17
Female sex, n (%)	255 (39.4)	166 (39.3)	89 (39.4)	789 (39.9)	102 (42.9)
Race, n (%)					
White	512 (79.0)	319 (75.6)	193 (85.4)	1596 (80.7)	196 (82.3)
Black	58 (9.0)	39 (9.2)	19 (8.4)	192 (9.7)	19 (8.0)
Hispanic/Latino	64 (9.9)	53 (12.6)	11 (4.9)	134 (6.8)	19 (8.0)
Asian	9 (1.4)	7 (1.7)	2 (0.9)	31 (1.6)	1 (0.4)
Other	5 (0.8)	4 (0.9)	1 (0.4)	25 (1.3)	3 (1.3)
Arrival source, n (%)					
Walk-in	344 (53.1)	244 (57.8)	100 (44.2)	990 (50.1)	106 (44.5)
EMS transport decision	228 (35.2)	128 (30.3)	100 (44.2)	702 (35.5)	83 (34.9)
Transfer from another facility	71 (11.0)	46 (10.9)	25 (11.1)	268 (13.5)	48 (20.2)
Other	5 (0.8)	4 (0.9)	1 (0.4)	18 (0.9)	1 (0.4)
MRSA history, mean ± SD					
Years from last positive MRSA isolate	2.7 ± 2.6	3.4 ± 2.7	1.3 ± 1.6	2.7 ± 2.7	2.3 ± 2.5
Years from original MRSA documentation	3.7 ± 3.0	4.2 ± 2.9	2.7 ± 2.8	3.7 ± 3.0	4.0 ± 3.3

EMS, emergency medical services; n_V, number of subject visits.
*Assessment not performed or performed incorrectly was categorized as no antibiotic documentation, not swabbed (n = 1832); no antibiotic documentation and swabbed (n = 61); documented on antibiotics and swabbed (n = 11); documented off antibiotics and not swabbed (n = 42); documented off antibiotics incorrectly and swabbed (n = 22); or documented antibiotics incorrectly and not swabbed (n = 10).

Table 3
Admission characteristics and idle beds, by assessment outcome

Variable	MRSA PCR-negative ($n_A = 291$)*	MRSA PCR-positive ($n_A = 185$)
Admission characteristics		
Admissions per subject, n mean ± SD	1.2 ± 0.4	1.3 ± 0.5
LOS, d, mean ± SD	5.5 ± 6.6	6.6 ± 7.4
LOS, d, median (IQR)	3.5 (1.3-6.3)	4.5 (2.0-8.0)
Admission to ICU, n (% admissions)	20 (6.9)	16 (8.6)
Admission to private room, n (% admissions)	160 (55.0)	122 (65.9)
Hours to bed arrival, mean ± SD*	9.1 ± 5.7	9.7 ± 6.4
Idle beds		
Admissions with idle beds attributed to MRSA, VRE, or MRSA/VRE, n (%)	45 (15.5)	35 (18.9)
Idle bed-hours attributable to MRSA, VRE or MRSA/VRE, mean ± SD	28.6 ± 25.2	75.3 ± 70.5
Total idle bed-days	54	110

n_A, number of admissions within 30 days of screen.
*A subset of admissions comprised direct admissions in which the patient was admitted directly to an inpatient bed, and thus had no recorded time to bed arrival. Among 291 PCR-negative admissions, 6 were direct admissions, resulting in 285 admissions in the hours to bed arrival analysis.

programs to accurately identify patients who are no longer colonized may improve patient care.

The main mechanism by which CP influenced bed availability was through the allocation of patients to semiprivate rooms requiring 2 patients with the same MRSA CP status. The efficiency of this allocation depends in part on the relative proportions of non-colonized and colonized patients. In the absence of a suitable match, beds may remain vacant at a time when patients await admission or within-hospital transfer. Reducing the number of patients requiring MRSA CP increases the pool of potential bed matches, because the majority of patients require standard precautions.

There was no significant association observed between PCR results (negative or positive) and hours to bed arrival; however, PCR-positive admissions were allocated more frequently to private rooms, which may attenuate any observed impact on hours to bed arrival. Delays to discontinuation of MRSA CP might have limited the impact, because by the time of CP discontinuation, the patient had already been admitted to an inpatient unit. Results were not acted on in the overnight hours and on the weekends, leading to potential missed opportunities to influence this metric. While allowing for discontinuation of CP 24 hours a day would have decreased the time to CP removal and potentially hours-to-bed arrival and idle bed-hours, at our institution the ability to remove CP is restricted to those trained in Infection Prevention or their designees, and 24/7 coverage was not available.

Our capture of reduction in idle bed-hours was conservative. The analysis was limited to ED-based admissions within 30 days and did not account for any impact after this time period, and focused on the idle beds attributable to subjects in the study. This approach did not account for the potential impact on other inpatients that would be expected given the effect of the program on the relative proportions of CP and non-CP patients.

We did not assess the impact of the program on non-inpatient visits, resulting in a conservative estimate of the averted costs of CP. The potential effect of the screening program on MRSA transmission was not assessed. In the absence of the program, however, a large proportion of cleared subjects would have been falsely-cohorted with other positive patients, potentially exposing them to an increased risk of transmission.[21]

There are limitations to our findings. Despite rapid point-of-care alerting of ED staff to patient eligibility, more than two-thirds of all eligible visits were not assessed or assessed incorrectly by ED staff, and the majority of those visits were observed to be “misses” without any documentation of antibiotic assessment, no screening swab obtained, or both. A portion of excluded subjects included those in whom swabs were obtained but the swab result could not be acted upon because of lack of accurate documentation of antibiotic exposure. The costs of those tests were incorporated into the costs of the program. Approximately nine months into the program, due to continued poor capture within the ED, a clinical research coordinator was hired to improve program performance. Performance improved dramatically in the subsequent period, with more than 80% of ED visits resulting in appropriate assessment and screening. The challenges of implementing such a program in a busy ED setting cannot be underestimated. With close to 300 visits a day to our ED, incorporation of a simple process of antibiotic documentation and patient swabbing was not successful until a dedicated individual was hired for this purpose.

PCR has been demonstrated to have high sensitivity and specificity compared with culture methods; however, both false-

Table 4
Projected program finances, at varying hospital occupancy levels

Hospital occupancy level, %	Occupied idle beds, n	Program costs, $*	CP costs averted, $†	Revenue from occupied idle beds, $	Total revenue (occupied idle beds and CP costs averted), $	Projected program surplus, $
75	89	155,440	(44,840)	(169,330)	(214,160)	(58,720)
80	95	155,440	(44,840)	(180,610)	(225,450)	(70,010)
85	101	155,440	(44,840)	(191,900)	(236,740)	(81,300)
99	118	155,440	(44,840)	(223,510)	(268,340)	(112,910)

*From Table 1.
†CP costs did not vary by occupancy level because they reflect the reduced implementation of CP among the PCR-negative admissions.

positive results (which would lead to patients remaining on CP unnecessarily) and false-negative results (which would lead to discontinuation of CP in the setting of persistent colonization) still occur. Despite this, given the demonstrated high negative predictive value (NPV) compared with culture assays,[10,22-24] we believe that the targeted screening of patients who would otherwise continue on MRSA CP is an appropriate and valid use of the assay. In fact, the lower sensitivity of culture assays provides the rationale for supporting protocols that require multiple sequential cultures to confirm clearance, with the attendant logistical challenges generated. We sampled the bilateral nares of subjects; however, extranasal colonization in the absence of nasal colonization has been observed.[21] Sampling of nares alone, however, has been shown to provide similar NPV as sampling multiple body sites.[21,24,25]

The study did not randomize subjects to be screened, and there were observed differences between the MRSA-cleared and MRSA-colonized patients. We did not explicitly account for any clinical consequences or costs associated with patients who initially were documented as MRSA-cleared and subsequently were found to be either infected with MRSA or colonized on repeat sampling performed in the course of clinical care; based on routine infection control surveillance we believe this to be an uncommon occurrence. We did not assess the impact of the program from the perspective of a patient or health care worker, both vantage points that likely would provide additional support for efforts aimed at identifying patients requiring CP for prevention of transmission. Initial capital investment costs for the PCR machine were not included. These costs are likely to vary across institutions. Finally, this program was implemented at a large tertiary care teaching hospital with a particular distribution of semiprivate and private accommodations. Whereas the exact ratio of semi-private to private rooms may differ compared to that in other hospitals, given that most hospitals include both types of accommodations, these findings are relevant beyond one specific institution.

CONCLUSION

In conclusion, as hospitals grapple with an ever-increasing demand for emergency evaluations, inpatient services, and the possible need for surge capacity, efficient use of existing beds is paramount. We have shown that a targeted program for discontinuation of MRSA CP in patients who are no longer colonized is a practical and cost-saving approach.

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