of an outbreak of *A. baumanni* infection in the adult intensive care unit in 2010 that was spread to other ward units in the hospital. However, we observed a sustained increase in the number of patients with an ESBL-positive Enterobacteriaceae isolated (from 58 to 110 patients), and the rate of MRSA isolation remained constant or decreased (from 74 to 57 patients; Figure 1).

Promoting appropriate use of antibiotics and preventing the spread of drug-resistant bacteria are key issues in tackling the public health problem of antimicrobial resistance. ASPs attempt to optimize prescribing of these drugs to benefit both current and future patients.[5] The introduction of annual fluctuation in the rate of isolation as a measure of the incidence of bacterial isolation from nosocomial patients is an interesting method that provides valuable information easily and is potentially useful for medium-sized hospitals. It is possible to include more important and significant strains in each data cluster obtained and to measure frequency of isolation in the units that require a greater emphasis on infection control. It also provides a projection of the trend and avoids confounding factors, such as seasonal increases due to epidemic outbreaks, different levels of activity throughout the year, and the influence of staff changes that could modify the efficacy of this method in clinical units. In summary, because the local surveillance of antimicrobial resistance is very important, it is necessary that competent professionals regularly process, evaluate, compare, and interpret local data regarding clinically and epidemiologically important patterns of antimicrobial resistance. Intelligible and easy-to-implement outputs of this activity must be routinely distributed to all concerned personnel as appropriate, and the annual fluctuation in the rate of isolation can contribute to this objective.

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Is Methicillin-Resistant *Staphylococcus aureus* Colonization Changing? A Study of Academic Health Center Daycare Facilities

To the Editor—While community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) skin infections are prevalent, their mechanism of transmission remains elusive.[1] Previous studies have documented that infections are common among athletic teams and in schools, daycare centers, and jails.[1,2] An estimated 1% of the population is colonized with MRSA,[3-6] and for healthcare workers the percentage is significantly higher. MRSA transmission from colonized healthcare workers to other family members has also been documented.[7] We sought to determine the incidence and prevalence of CA-MRSA colonization among people and on surfaces at two university-based daycare centers. This study employed an observational design, in which people and surfaces in a daycare center were swabbed for CA-MRSA.

The study was conducted at two university-based daycare centers in Gainesville, Florida, at the University of Florida. One center serves families of healthcare workers (academic health center); the other serves families of nonclinical faculty and staff (university). Gainesville is a city of 114,000 with a high prevalence of CA-MRSA.[8] At the time of the study, the facilities served 194 children (103 at the university facility, 91 at the academic health center). A convenience sample of parents, children, and employees of the daycare centers was utilized for the purposes of this study. Eligibility criteria included being able to read and speak English fluently.

Researchers collected demographic information and 3 linked sets of swabs for culture: (1) nose and throat swabs

TABLE 1. Demographics and Outcomes of MRSA Swabs

	University facility	Academic health center facility	Total
Children tested	30 (29.1)	23 (25.3)	53 (27.3)
Parents tested	32 (31.1)	24 (26.4)	56 (28.9)
Daycare staff tested	18	13	31 (77.5)
Total subjects	80	60	140
Surfaces tested	29	58	87
MRSA cultures positive	0	1 (0.83)	1 (0.36)

NOTE. In the first 3 rows, the numbers in parentheses are percentages based on the total number of possible participants: 194 parent-child dyads (103 at the university facility and 91 at the academic center) and 40 daycare staff. In the last row, the numbers in parentheses are percentages of nose and throat swabs tested, ie, 2 for each of the "total subjects" in the respective columns. MRSA, methicillin-resistant *Staphylococcus aurea.*

from parent-child dyads; (2) nose and throat swabs from daycare staff; and (3) surface swabs from daycare environments. Children ranged in age from 6 months to 5 years. Samples were obtained with sterile transport swabs (HealthLink TransPorter, Cardinal Health). All swabs were numbered, blinding laboratory technicians to the culture source. Five positive controls (laboratory MRSA control strain #ATCC 43300) and 5 negative controls (opened but unused swabs) were also delivered in a blinded fashion to assure validity of methods. All samples were delivered within 1–2 hours of collection. Spectra MRSA (Remel) selective medium was used for potential isolates of MRSA. This study was approved by the University of Florida Institutional Review Board.

A total of 56 parents (28.9%), 53 children (27.3%; 3 refused), and 31 staff (77.5%) participated, yielding 140 nose and 140 throat swabs; 87 surface swabs were collected (see Table 1). Only 1 swab (0.36%) tested positive for MRSA, a throat culture from a child who attended the daycare center for nonhealthcare families. Out of 87 surface swabs, none tested positive for MRSA. The 5 positive and negative controls validated our methods.

Despite endemic CA-MRSA within this community, participants in this study were not found to be colonized with MRSA. Our negative results directly contradict results found in both domestic and international daycare settings.[7,9,10] This study additionally revealed a lack of colonization of MRSA on surfaces presumed to be highly colonized.[1]

It is important to note that both facilities involved in the study are National Association for the Education of Young Children–accredited facilities and adhere to its strict guidelines for child and worker hygiene. This may be responsible for the lack of colonization within the daycare centers.

We cannot generalize our findings to other centers in other settings, as the sites for this study were limited to two centers in one city. However, the high rate of CA-MRSA in this community, coupled with the location of the academic healthcare center, created an ideal opportunity to identify colonized individuals. Further, the use of matched child-parent dyads, along with staff at the same facilities, increases the strength of these negative findings.

It appears that family clusters within the daycare centers in this study are neither a likely source nor a route of CA-MRSA transmission. Therefore, preventive efforts focused on decolonization in hospital settings and adherence to Occupational Safety and Health Administration standards for hygiene in hospital and daycare settings may significantly reduce colonization rates. Since the colonization, transmissibility, and expression rates of CA-MRSA are still poorly understood, further research must clarify the extent of the role of decolonization in community settings.

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Hand Hygiene Championship: A Direct Observational Study

To the Editor—Hand hygiene (HH) is the single most important element of strategies to prevent healthcare-associated infection (HAI),[1-3] although promotion strategies have been in place for several decades in developing countries. Continuous efforts are needed in most hospitals worldwide to maintain an acceptable level of adherence to hand hygiene practice.[2] Monitoring hand hygiene adherence serves multiple functions, including quality of care assessment, incentive for performance improvement, outbreak investigation, and infrastructure design.[4-6] Direct observation of health care workers (HCWs) during patient care activity by trained and validated observers is recognized as the gold standard for hand hygiene monitoring.[2,7-9]

We announced a competition that we called "Hand Hygiene Championship in Intensive Care Unit (ICU)." To assess the impact of a competition strategy, we observed HCWs for their compliance with any HH opportunity during routine care activity in a large adult ICU with a 100-bed capacity that was divided into 4 physically separated sections in King Saud Medical City in Riyadh, Saudi Arabia.

Nursing staff were dedicated before the competition announcement in each section. The infection control team in the ICU announced that there would be a 2-month competition for the best compliance with HH practice in the ICU. A ceremony was arranged for the end of the competition to distribute gifts, trophies, and appreciation certificates with the participation of the ICU chairman and Infection Prevention and Control Department chairman. We observed more than 700 HCW HH opportunities that conformed to the World Health Organization's "5 Moments for Hand Hygiene."[2] Our study involved all HCWs who met the World Health Organization definition for HH opportunities at the time of observation in all ICU sections. We performed 8 weeks of observation starting on February 1, 2012, and ending on March 31, 2012.

HH compliance rates have never previously been reported in our ICU by section. During the period of the championship competition, a total of 874 observations were noted, and of those, 502 (57%) occurred among nurses, 163 (19%) occurred among physicians, and 209 (24%) occurred among other HCWs. Total HH compliance among all HCWs improved from 58% to 70% (Figure 1). Our results showed that HH compliance for the ICU overall improved from 52% in January 2012 to 70% by the end of the championship competition in March 2012. Nurses showed the highest compliance rate and improved from 62% to 81%. The rate of HH compliance among physicians improved from 40% to 52%, but physicians showed the lowest compliance rate among all HCW categories. When we reviewed the data from the observation forms, we found that the compliance rate before touching a patient and before clean or aseptic procedures (moments 1 and 2) were 20% and 31%, respectively, and the overall compliance rate among all HCWs increased to 80%–88% after body fluid exposure, after touching a patient, and after touching patient surroundings (moments 3–5).

The result of the competition strategy showed an important improvement in the attitude toward and level of compliance with HH practices. Such an improvement will have an impact on reducing HAIs. Additional motivation strategies should be arranged to improve all HCW rates of compliance with HH.