may be performed.[4] However, the same argument does not apply for hematology patients, because their risks for infection and the nature of their care (eg, ambulatory care) may not allow for benchmarking with ICU or other populations. We question the notion that a definition that has been used predominantly in ICU populations can simply be extrapolated to non-ICU populations, without comprehensive evaluation.

Recently, the National Healthcare Safety Network (NHSN) definition for laboratory-confirmed BSI has replaced the NNIS definition,[5] and this simplified NHSN definition no longer contains the requirement for the treating physician to institute "appropriate antimicrobial therapy" (criterion 2B of the NNIS system diagnostic criteria) for classification of an infection as CVC-associated BSI. As a result of this change, longitudinal evaluation using historical data will not be possible until baseline data are accrued using the new definition. We therefore believe it is timely to consider the feasibility and applicability of surveillance definitions, in a milieu where many healthcare centers may already be implementing modified definitions for healthcare-associated BSIs.

Robust, multicenter evaluation must be performed prior to the implementation or modification of any standardized surveillance strategy, and findings at our own healthcare center's hematology unit may not reflect the findings at other hematology units. Such an evaluation must include the necessary resource requirements. We suggest that, as a key stakeholder, the hematologist, whose regular clinical contact is incorporated into his or her usual work flow, may be well positioned to inform surveillance activities or to flag potential cases for surveillance personnel. We welcome debate regarding the utility and implementation of a range of case definitions in hematology units, and we do not believe this to be counterproductive to the implementation of surveillance by individual hematology units. Such debate may contribute to future research agendas, in which the validity and ease of implementation can both be evaluated.

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REFERENCES

1. Graham A, Olver W. Surveillance of central venous catheter–associated bloodstream infection in a Scottish hematology unit. *Infect Control Hosp Epidemiol* 2008;29:985–986 (in this issue).
2. Worth LJ, Black J, Seymour JF, Thursky KA, Slavin MA. Surveillance for catheter-associated bloodstream infection in hematology units: quantifying the characteristics of a practical case definition. *Infect Control Hosp Epidemiol* 2008;29:358–360.
3. Worth LJ, Slavin MA, Brown GV, Black J. Catheter-related bloodstream infections in hematology: time for standardized surveillance? *Cancer* 2007;109:1215–1226.
4. Horan TC, Emori TG. Definitions of key terms used in the NNIS System. *Am J Infect Control* 1997;25:112–116.
5. Horan TC, Andrus M, Dudeck MA. CDC/NHSN surveillance definition of health care-associated infection and criteria for specific types of infections in the acute care setting. *Am J Infect Control* 2008;36:309–332.

Has the Time Come to Recommend the Use of Alcohol-Based Hand Rub to Hospitalized Patients?

To the Editor—Methicillin-resistant *Staphylococcus aureus* (MRSA) is a well-known and important nosocomial pathogen worldwide.[1-3] Attempts to control the spread of MRSA have relied mostly on 3 measures: (1) use of alcohol-based hand rub by healthcare workers (HCWs), (2) screening of patients with risk factors for MRSA carriage on admission, and (3) isolation of colonized or infected patients.[4-6] The role played by HCWs in the transmission of MRSA has been established,[5,7] but little is known of the role played by colonized patients in the transmission of MRSA from patient to patient.[8]

Our institution is a 230-bed tertiary care teaching hospital (with a 14-bed intensive care unit) that had 7,590 admissions in 2007. All patients with risk factors for MRSA carriage are screened within 72 hours of hospital admission. The risk factors include transfer from another hospital or nursing home, previous surgical procedure, repeated hospitalization, stay in an intensive care unit during the last 3 years, presence of open wounds, and long-term oxygen therapy. All detected MRSA carriers are placed in isolation. If private rooms are not available, then the MRSA-colonized patients are grouped with other MRSA carriers or placed in rooms occupied by patients without MRSA colonization, and a distance of at least 1 meter between patients' beds has to be assured. If a hospitalized patient is found to carry MRSA more than 72 hours after admission, surveillance cultures of nasal samples are performed for all other patients in the same room and for HCWs who have had contact with the MRSA carrier. The prevalence of MRSA has remained fairly constant during the past 4 years (ie, 4.6–5.1 cases per 1,000 admissions). The proportion of MRSA cases that were acquired by patients at our hospital was substantially reduced (from 50% to 6% of

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all MRSA cases) after we implemented a rigorous infection control program based on guidelines from the Centers for Disease Control and Prevention that were adapted from the University Hospital Basel, Switzerland.[6]

We describe the transmission of MRSA by a colonized patient who had not been screened on admission because no risk factors could be identified at that time. A 56-year-old woman (case patient 1) was placed in the same room with 2 other patients. A sputum sample was collected because of her clinical presentation of lower respiratory tract infection on day 4. Two days later (day 6), detection of MRSA in the sputum was reported. Because case patient 1 had stayed with undetected MRSA colonization for more than 3 days in the same room with the 2 other patients, screening of these 2 patients was performed and consisted of nasal and throat swab samples. The nasal swab sample of 1 patient (case patient 2) was found to be positive for MRSA, whereas the screening samples of the other patient were negative. The isolates recovered from both colonized patients were susceptible to clindamycin and erithromycin, which is an extremely rare feature of MRSA isolates detected in our institution (6 of 286 MRSA isolates in past 6 years). Molecular typing of both isolates by pulsed-field gel electrophoresis showed a relatively indistinguishable banding pattern (Figure). After interviewing case patient 1 a second time, we found out that she was in contact with an MRSA carrier before she was admitted to the hospital. She also revealed that she helped case patient 2 (eg, by assisting her with drinking, arranging pillows, and turning her in bed) so as not to call nursing staff repeatedly. We also screened all HCWs who were in contact with both colonized patients and found that none had been colonized. One might argue that HCWs could have transmitted MRSA from one patient to the other and not have colonized themselves at the same time, but this is less likely because the third patient in the room remained negative for MRSA and yet had repeated contacts with HCWs and no contact with case patient 1.

Because this was the second case of probable direct patient-to-patient transmission in our hospital, we prepared an educational leaflet on hand hygiene for patients in which we recommend the use of alcohol-based hand rub during their stay in the hospital. Although no data are available on the role patients play in intrahospital transmission of MRSA, we believe that it should not be dismissed, at least in hospitals where single rooms are not readily available. We should educate our patients on how they can contribute to the global fight against MRSA, and we should give them the opportunity to actively participate in hospital-acquired infection and colonization prevention. With the growing problem of the transmission of community-associated MRSA among patients with no risk factors and no prior connections to healthcare systems, their hand hygiene could be an important factor in the successful prevention of the spread of community-associated MRSA in hospitals. We believe that the active role played by patients in some aspects of infection control could be beneficial and should be addressed in the future.

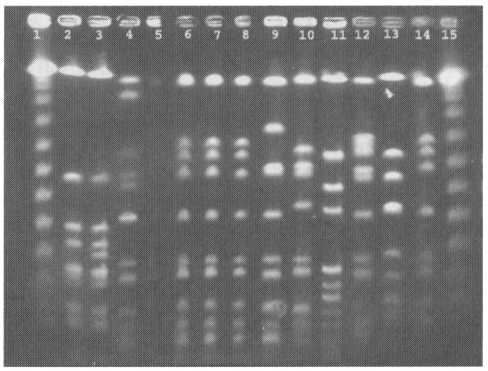

FIGURE. Findings of pulsed-field gel electrophoresis of isolates of methicillin-resistant *Staphylococcus aureus* (MRSA) recovered from patients hospitalized in our institution. *Lanes 1* and *15,* molecular weight markers; *lane 2,* MRSA isolate from case patient 1; *lane 3,* MRSA isolate from case patient 2; *lanes 4–14,* MRSA isolates from patients hospitalized in our institution before, at the same time, and after the 2 patients involved in MRSA transmission.

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REFERENCES

1. Gould IM. The clinical significance of methicillin-resistant *Staphylococcus aureus. J Hosp Infect* 2005; 61:277–282.
2. Klevens RM, Edwards JR, Tenover FC, McDonald LC, Horan T, Gaynes R. Changes in the epidemiology of methicillin-resistant *Staphylococcus aureus* in intensive care units in US hospitals, 1992–2003. *Clin Infect Dis* 2006; 42:389–391.
3. Borg MA, de Kraker M, Scicluna E, et al. Prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA) in invasive isolates from southern and eastern Mediterranean countries. *J Antimicrob Chemother* 2007; 60:1310–1315.
4. Boyce JM, Havill NL, Kohan C, Dumigan DG, Ligi CE. Do infection control measures work for methicillin-resistant *Staphylococcus aureus*? *Infect Control Hosp Epidemiol* 2004; 25:395–401.
5. Voss A. Preventing the spread of MRSA. *BMJ* 2004; 329:521.
6. Tomic V, Svetina Sorli P, Trinkaus D, Sorli J, Widmer AF, Trampuz A. Comprehensive strategy to prevent nosocomial spread of methicillin-resistant *Staphylococcus aureus* in a highly endemic setting. *Arch Intern Med* 2004; 164:2038–2043.
7. Blok HE, Troelstra A, Kamp-Hopmans TE, et al. Role of healthcare work-

https://doi.org/10.1086/591031 Published online by Cambridge University Press

ers in outbreaks of methicillin-resistant *Staphylococcus aureus:* a 10-year evaluation from a Dutch university hospital. *Infect Control Hosp Epidemiol* 2003; 24:679–685.
8. Morel AS, Wu F, la-Latta P, Cronquist A, Rubenstein D, Saiman L. Nosocomial transmission of methicillin-resistant *Staphylococcus aureus* from a mother to her preterm quadruplet infants. *Am J Infect Control* 2002; 30:170–173.

Trends in *Stenotrophomonas maltophilia* Bloodstream Infection in Relation to Usage Density of Cephalosporins and Carbapenems During 7 Years

To the Editor—Stenotrophomonas maltophilia is a nonfermentative gram-negative bacillus that causes nosocomial infections, mainly in debilitated and imunocompromised patients.[1,2] In the last decade, this agent has emerged as an important nosocomial pathogen.[3-5] A study conducted from 1997 to 2001, involving 18,569 isolates of nonfermentative gram-negative bacilli, found that *S. maltophilia* was the pathogen isolated third most frequently from clinical specimens.[5] The incidence of infection due to this pathogen ranged from 3.4 to 37.7 cases per 10,000 patients discharged.[2] Prior exposure to antimicrobial agents, particularly β-lactam agents, increases the risk of infection due to *S. maltophilia.*[3] However, the relationship between usage density of β-lactams and the incidence of infection due to *S. maltophilia* remains controversial. The aim of this study was to evaluate the effect of the usage of antipseudomonal third-generation cephalosporins, fourth-generation cephalosporins, and carbapenems on the rates of bloodstream infection caused by *S. maltophilia* during a 7-year period (1999–2006).

This study was conducted at the Hospital das Clinicas, a 945-bed tertiary care university hospital, with 12 intensive care units (ICUs) that have 120 beds, and 3 transplant units, affiliated with the University of São Paulo, Brazil. The hospital has a policy of restriction of use of several antibiotics, including quinolones, third- and fourth-generation cephalosporins, piperacillin-tazobactam, vancomycin, teicoplanin, linezolid, carbapenems, and polymyxins. From 1999 through 2006, cases of *S. maltophilia* bloodstream infection were identified by reports from the hospital infection control committee. The data were prospectively collected by the infection control team, according to National Healthcare Safety Network definitions. Bloodstream infection rates were calculated using the number of patient-days and central line–days in the ICUs and the number of admissions in the non-ICU care areas as denominators. β-lactam use (in milligrams) from 1999 through 2006 was converted into the number of defined daily doses (DDDs) per 1,000 patient-days used in our hospital per year. A defined daily dose is the average daily dose in grams of a specific antimicrobial agent given to an average adult patient. We used the 2008 World Health Organization DDD values for imipenem (2 g), meropenem (2 g), a fourth-generation cephalosporin (cefepime; 2 g), and an antipseudomonal third-generation cephalosporin (ceftazidime; 4 g).[6] Data were analyzed using Epi Info 6.04 software (Centers for Disease Control and Infection). The χ^2 test for linear trend was used to evaluate the trends of incidence of bloodstream infection due to *S. maltophilia* and the use of β-lactam agents (measured in DDDs) during the study period.

From January 1999 through December 2006, data from 12 ICUs, 3 transplant units (kidney, liver, and bone marrow transplant), and 5 general wards were analyzed. The total number of patients hospitalized during the period was 316,080; there were 176,219 patient-days and 124,255 central line–days recorded in the intensive care units. We identified 100 cases of *S. maltophilia* bloodstream infection; 90% of the episodes occurred in the ICUs, and 10% in the non-ICU areas. Of the 90 cases in the ICUs, 33 (36.6%) were located in the medical ICU, 30 (33.3%) in the hematology ICU, 10 (11.1%) in the transplant ICU, 8 (8.8%) in the burn ICU, 6 (6.6%) in the surgical ICU, and 3 (3.3%) in the trauma ICU.

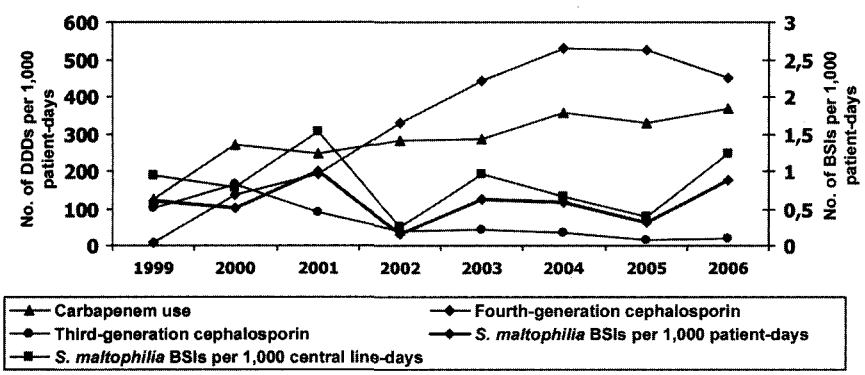

FIGURE. Comparison of median rates of bloodstream infection (BSI) due to *Stenotrophomonas maltophilia* with the use of carbapenems and third- and fourth-generation cephalosporins, in Hospital das Clinicas of the University of São Paulo, during a 7-year period. DDD, defined daily dose.

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