LETTERS TO THE EDITOR

Screening for Methicillin-Resistant *Staphylococcus aureus*: Reliability and Accuracy

To the Editor—We read with great interest the article by Lucet and Regnier in *Clinical Infectious Diseases* that discussed the controversy regarding screening and decolonization for methicillin-resistant *Staphylococcus aureus* (MRSA).[1] Whether screening effectively detects a significant proportion of patients colonized with MRSA and whether decolonization is effective for the prevention of infection are matters of debate.[1] We would like to briefly report a study conducted in a 706-bed tertiary care hospital, the results of which may add to the current data that exist on screening for MRSA.

In our institution, screening for MRSA is performed by culturing samples obtained from the anterior nares alone. Although some have found swab samples of the nares to be of sufficient utility,[2] others assert that cultures of samples obtained from a combination of sites are necessary for adequate levels of detection.[3] To assess the effectiveness of the nares swab as a screening tool, we conducted a retrospective analysis of cultures of nares specimens at our institution and compared the rates of concordance and discordance with the results of concomitantly performed clinical cultures. We searched our Web-based infection prevention database for all nares swab samples tested for patients hospitalized at our institution during the calendar year 2008. Another query was performed to detect all clinical cultures with positive results for MRSA during the same time period. A clinical culture was defined as any culture not originating from a screening test of nares samples. We paired the 2 data sets and proceeded to exclude all patients for whom only nares screening tests or only clinical cultures were performed. Of the remaining data, we included only those patients for whom samples were obtained for both a nares screen and a clinical culture within 48 hours. Concordance was defined as the presence of both a nares screen and a clinical culture result positive for MRSA within 48 hours. Similarly, discordance was defined as a negative nares screen result but a positive clinical culture result for MRSA within 48 hours. A total of 630 events met the inclusion criteria for analysis. Of these, only 206 (32.7%) fulfilled the definition of concordance, whereas 114 (18.1%) fulfilled the definition of discordance. Of 320 clinical cultures with positive results for MRSA, only 206 of the matching nares screen culture results were also positive for MRSA. This yielded a sensitivity of 64.4% for the nares screen. The specificity, negative predictive value, and positive predictive value of the nares screen were 95.2%, 72.1%, and 93.2%, respectively (Table 1).

TABLE 1. Concordance and Discordance between Cultures of Nares Samples and Clinical Cultures for Methicillin-Resistant *Staphylococcus aureus*

	Clinical culture result, no. of cultures	
Nares culture result	Positive	Negative
Positive	206	15
Negative	114	295

Our study attempted to analyze the sensitivity of the nares screen for the detection of MRSA. To analyze sensitivity, as with any screening modality, the screen must be compared with a gold standard. In our examination of the literature, this comparison with a gold standard has been lacking. Chen et al have attempted such a comparison among children with skin and soft-tissue infections.[4] Their data seem to indicate a 31% concordance rate between isolation of MRSA in culture of samples from wounds and from the nares. In a similar fashion, we believe that the best reference point with which to compare culture of nares swabs is the clinical culture of MRSA.

Our study results demonstrate a modest sensitivity for the nares screen, which is held as the standard of care in screening for MRSA. This is consistent with published literature.[5,6] Obtaining routine samples for surveillance cultures from additional sites, such as axilla, perineum, and wound sites, for all patients may increase the identification of MRSA colonization, but whether this practice would yield beneficial results to decrease the incidence of healthcare-associated MRSA infection remains unclear.

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The Accuracy of Influenza Diagnosis

To the Editor—The article by Talbot et al[1] entitled "Failure of Routine Diagnostic Methods to Detect Influenza in Hospitalized Older Adults" does not mention the use of serological methods for the diagnosis of influenza. Seroconversion identified by complement fixation or hemagglutination inhibition methods has proven to be a robust method for the diagnosis of influenza when clinical presentation occurs after virus shedding in the upper respiratory tract has finished.[2] This delayed clinical presentation may occur in patients with complicated influenza virus infection, and we have observed it among patients with pneumonia who were admitted to intensive care units in Australia. During the outbreak of pandemic H1N1 influenza in 2009, serological test results confirmed influenza infection in 29 of 33 adult patients who had an illness consistent with influenza in intensive care units, whereas sensitive nucleic acid test results were positive in only 18 of 33 patients.[3] Our findings support those presented by Talbot et al[1] of a high sensitivity (80.8%) of clinical diagnosis. However, we suggest that, to increase the sensitivity of laboratory diagnosis and derive an accurate measure of the specificity of clinical diagnosis, serological testing must be included in any algorithm used for the diagnosis of influenza.

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