Letters to the Editor

Evaluation of a New Medium, Oxacillin Resistance Screening Agar Base, for the Detection of Methicillin-Resistant Staphylococcus aureus from Clinical Specimens

The incidence of infections caused by methicillin-resistant Staphylococcus aureus (MRSA) continues to increase in many countries worldwide. Rapid identification of MRSA from clinical specimens and screening of high-risk patients for MRSA colonization have been found to be cost-effective measures for limiting the spread of the organism in hospitals (1, 6). Several screening media for the enhanced recovery of methicillin-resistant organisms and for the differentiation of Staphylococcus aureus from coagulase-negative staphylococci have been developed (2, 4, 5, 7, 8). Recently, a novel medium, oxacillin resistance screening agar base (ORSAB; Oxoid Limited, Basingstoke, England), has been developed for the detection of MRSA in clinical specimens. The medium uses aniline blue to demonstrate mannitol fermentation in staphylococci. The dual antibiotic supplement (oxacillin, 2.0 µg/ml; polymixin B, 50,000 IU/l) and the presence of 5.5% NaCl have the potential to reduce the growth of nonstaphylococcal organisms and to select for the growth of MRSA. We evaluated the performance of ORSAB as compared to that of mannitol salt agar supplemented with 2.0 µg/ml oxacillin (MSA) for the recovery of MRSA from clinical specimens.

A total of 455 specimens were obtained for MRSA culture, consisting of nares (132 specimens), perineum (109 specimens), skin and soft tissue (206 specimens), sputum (5 specimens), and urine (3 specimens). In order to increase the yield of positive cultures, specimens were obtained from patients known to have had MRSA colonization in the past, from hospital contacts of these patients, and from other patients thought to be at high risk for MRSA colonization. Each specimen was cultured on ORSAB and MSA media, with incubation for 48 h in ambient air at 35°C. The plates were examined at 24 and 48 h for the presence of mannitol-fermenting colonies, which were blue on ORSAB and yellow on MSA. Each morphotype of a mannitol-fermenting colony was subcultured onto sheep blood agar and identified by conventional tests, including Gram staining and tests for catalase activity, tube coagulase activity, and latex agglutination (Pastorex Staph Plus, Bio-Rad, Mississauga, Ontario, Canada). The MRSA Screen test (Denka-Seiken, Tokyo, Japan) was used for the detection of PBP2a associated with oxacillin resistance in staphylococci (3). Identification as MRSA was subsequently confirmed by multiplex PCR for the nucA and mecA genes (3). MRSA was isolated from 104 specimens. Four MRSA isolates were detected only on the ORSAB medium, and two were recovered only from the MSA. After 24 h of incubation, 79 (76%) of the MRSA isolates were evident on the ORSAB medium, and 67 (64%) were evident on the MSA. After 48 h of incubation the yield of MRSA increased for both ORSAB and MSA to 98% (102 of 104 specimens) and 96% (100 of 104 specimens) respectively (Table 1).

A greater number of specimens yielded mannitol-fermenting colonies on the MSA (177 specimens) as compared to the ORSAB (138 specimens). However, a total of 77 (44%) of mannitol-fermenting colonies grown on the MSA plates were subsequently determined not to be MRSA, as compared to 26 (26%) of mannitol-fermenting colonies grown on ORSAB that were not MRSA ($P = 0.001$) (Table 1).

In summary, the yield of MRSA on ORSAB was comparable to that obtained on MSA, although specimens planted onto MSA required additional work-up of mannitol-fermenting colonies that were subsequently determined not to be MRSA. These results indicate that ORSAB may be considered a useful medium for the isolation of MRSA from clinical and prevalence screening specimens, although long-term evaluation to determine lot-to-lot variability in the performance of this commercial medium should be done.

### REFERENCES


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