

LETTERS TO THE EDITOR

Hospital Costs in Patients with Nosocomial Methicillin-Resistant or Methicillin-Susceptible *Staphylococcus aureus* Bloodstream Infection

To the editor.—Given our interest in health economics in the field of infectious disease research, we read with interest the article by Dr Ben-David and colleagues published in the May 2009 issue of the journal.¹⁻⁵ The authors examined the attributable impact of methicillin resistance among patients with nosocomial methicillin-resistant *Staphylococcus aureus* bloodstream infection on hospital mortality, length of stay, and costs, compared with patients with nosocomial methicillin-susceptible *S. aureus* bloodstream infection. Their initial results suggested increased resource use in terms of hospital costs and length of stay associated with methicillin resistance; however, after they had accounted for potential confounders by means of a propensity score analysis, their final results did not reveal increased resource use.³

Although we agree with the conclusion of Dr Ben-David and colleagues, we have some suggestions regarding the additional study that they propose. In their propensity score, which was assessed for each individual case patient, the authors did not include prior use of antibiotic agents (appropriateness of therapy, number of antibiotics administered, and duration of antibiotic use) and whether the patients were cared for in a long-term care facility prior to hospital admission—both variables that are associated with acquisition of antibiotic resistance.⁶⁻⁸ As such, important bias may remain, because the propensity score adjusted for in their analysis may not satisfactorily correct for existing differences between patients with nosocomial bloodstream infection caused by methicillin-resistant *S. aureus* and patients with nosocomial bloodstream infection caused by methicillin-susceptible *S. aureus*.⁹ In an aim to increase the generalizability of a propensity score to other settings or institutions, however, it is important to keep such a “probability model” as simple as possible, which means retaining only the most clinically relevant variables in the final analysis. In this regard, we do not completely comprehend why some characteristics that seem not to have any relationship to methicillin resistance were included (eg, presence of cirrhosis or diabetes mellitus [$P = .7$]; see their Table 4), while other characteristics were excluded (eg, residence in a long-term care facility), even though they were statistically and clinically relevant. We would like to kindly invite Dr Ben-David and colleagues to clarify the decision process by which potential confounders were included or excluded from the final model on which the propensity score was based.

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