Reply to Cadena et al

To the Editor—We thank Dr Cadena and colleagues for their comments about the difficulty in ascertaining the diagnosis of ventilator-associated pneumonia (VAP) and the impact of our preventive approach [1]. We agree that diagnosing VAP is difficult. Our diagnosis criteria were more conservative...
when the Centers for Disease Control and Prevention (CDC) criteria used in the National Healthcare Safety Network (NHSN) system, because quantitative microbiological criteria were required to define VAP, in addition to radiological and clinical signs. However, our VAP rates, as well as the mean VAP rates from the French national surveillance network, were higher than those observed in the NHSN. This difference may be attributable to actual higher rates of VAP in French intensive care units (ICUs). However, VAP rates also may be overestimated in the presence of significant bacteriological counts without VAP (eg, with tracheobronchitis). Conversely, actual VAP in the NHSN may be overlooked if quantitative criteria are not used, and another diagnosis is retained for a patient with abnormal chest radiograph findings and another possible focus of infection. Therefore, trends of VAP rates using a stable definition in a quasi-experimental study may be more important than VAP rates themselves [2]. More specifically, in our study, all diagnoses of VAP were determined before initiation of or change in antimicrobial treatment. A protected catheter specimen was usually obtained with bronchoscopy during the day and was typically blindly obtained without bronchoscopy during the night.

We agree that several microorganisms found in our study are not commonly associated with VAP (eg, coagulase-negative staphylococci). An average of 1.4 microorganisms were cultured for each case of VAP. Most of these usually nonsignificant organisms were cultured in association with significant pathogens. However, we strictly applied the VAP definition and confirmed that these organisms were present in a significant concentration in the pulmonary sample.

There was a significant difference in the length of ICU stay between the two periods, with shorter duration of ICU stay during the intervention period, despite a higher severity of illness. We cannot draw firm conclusions, however, regarding the putative impact of our intervention on ICU length of stay because of the uncertainties regarding a causal relationship between the intervention and the length of stay, as well as because of the before-after design of our study. In the literature, several interventions aimed at decreasing VAP rates have been reported to be successful, but these interventions have never been reported to result in an improved outcome [3], with the exception of a single study [4]. In this latter study, the selected outcome was ICU mortality and not VAP rate (likely because the diagnosis of VAP may be difficult).

The impact of other preventive methods for VAP has been variable. Only 1 study suggested that silver-impregnated endotracheal tubes may decrease VAP rates, and its design and results have been questioned [5, 6]. There is a higher rationale and more scientific evidence for subglottic secretion aspiration or digestive and/or oropharyngeal decontamination [7]. In our study, we used oral decontamination with antiseptics and acknowledged that subglottic secretion aspiration should be included in a “VAP bundle.”

Compliance with VAP preventive measures was 58%–96% at the end of the intervention. Noticeably, high compliance rates have been reported in several studies, but compliance was frequently self-reported in these studies [8]. In studies that systematically measured compliance, it was much lower (eg, for maintaining the patient in a semi-recumbent position) [9]. We agree, however, that our bundled intervention could have been expedited using additional preventive measures.

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