Reply to Aliberti et al and van Griensven et al

To the Editor—We appreciate the letter by Aliberti et al regarding our article exploring the definition of healthcare-associated pneumonia (HCAP) relative to a novel scoring system for the identification of multidrug-resistant pathogens causing pneumonia in persons presenting to the hospital [1].

Through examination of the current definition of HCAP as a screening test to identify multidrug-resistant pathogens, these authors confirm our primary finding that, as a concept, HCAP has many limitations [1, 2]. It clearly misclassifies many patients, as we have shown previously [3, 4]. In turn, this can result in the use of unnecessarily broad-spectrum antibiotics, and concurrently promote further antimicrobial resistance. We appreciate the authors’ diligent effort to corroborate our point.

Aliberti et al also note that our risk score, applied retrospectively to their cohort, performs essentially as well as the HCAP definition. Thus, they comment that our risk score has limitations as well. Specifically, they express concern about the applicability of our score given its heavy weight on intensive care unit (ICU) admission as a marker for potential resistance.

In our article, we comment that the generalizability of our score may be limited. We suspect this is the case as it relates to their application of our schema. In essence, criteria for ICU admission vary greatly between the United States and Europe, as do other factors driving antimicrobial resistance. We concur, therefore, that risk scores for this purpose require specific external validation in other settings before they are applied.

Nonetheless, in the absence of rapid diagnostic tools for risk stratification—an approach that focuses on the use of risk scoring, as Aliberti et al state—is likely to prove more valuable than a cumbersome and overly broad concept such as HCAP. In the end, we will likely require a Bayesian approach that embraces an assessment of pretest probability along with a risk score.

Van Griensven et al [5] have several rather different concerns. They note that HCAP applied as a definition is a binary outcome (eg, present or absent) whereas the risk score by its nature is iterative. They worry that this essentially a priori disadvantages the HCAP definition in the comparisons we undertake. We appreciate their point. However, as applied in the clinical setting, HCAP is seen as a discrete disease state—it is either present or absent. Our purpose was (1) to examine a legitimate clinical dilemma and (2) to try to help resolve it—this drove our analytic approach. Providing more discretion in the decision to classify a patient as at risk for drug-resistant pathogens clearly can aid clinicians and limit reflexive and indiscriminate use of broad-spectrum antimicrobials.

We further note, however, that many patients classified as having HCAP as currently defined often meet several of the specific criteria for HCAP. On average, patients with HCAP had at least 2 risk factors for this state. In other words, therefore, the HCAP definition may not be as simple a dichotomy as van Griensven et al propose [5].

Finally, the authors express concern about the misclassification of patients and the relative importance of false-negative and false-positive results. We entirely accept that this is a trade-off that merits specific attention. In fact, we describe this very trade-off in the Results section of our article [3]. Overtreating a patient for several days (eg, false-positive result) may be less important as falling to prescribe a broad-spectrum agent when it is indicated (eg, false-negative result). In other words, there is a trade-off in this sense between the HCAP approach and our clinical decision rule. How one chooses to value this trade-off must be based on clinical and policy issues and is not a function of either the risk score or the HCAP concept. We did not aim to address this point but merely to honestly illustrate that any revision of the HCAP approach requires a forthright consideration of this issue. We hope future guidelines from professional societies focus on this concern.

Note

Potential conflicts of interest. All authors: No reported conflicts.

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