

Reply to authors

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Dear Editor:

We thank Luis F. Reyes and colleagues [1] for their comments and interest in our manuscript, “Derivation and Validation of a Novel Severity Scoring System for Pneumonia at ICU Admission”.[2] Considering the results from a database of critically ill patients with pneumonia published by Luis F. Reyes et al., we agree that further analyses are required to better evaluate the performance of the Pneumonia Shock score over a broader time period. While data regarding long-term outcomes in patients with pneumonia are emerging, the factors directly associated with this mortality remains unclear.[3] Given the relevance of early identification of patients with pneumonia at higher risk for ICU mortality, our study aimed to develop a simple prognostic tool that could routinely be applied within the first hours of ICU admission. Furthermore, while long term outcomes have emerged as critical benchmarks for critical care interventions, the Pneumonia Shock score serves to aid in the early discrimination of patients with increased risk of ICU and in-hospital mortality thereby targeting resources towards appropriate interventions in the most critically ill.[1,2] Reliance on general ICU severity scores (such as SAPS-II) that use variables often unavailable in the first hours of ICU admission may fail to accurately triage and identify those at highest risk of ICU death.[4,5] Thus, there may be a delay in adequate support and interventions during the initial period of ICU admission with severe pneumonia. Nevertheless, in contrast with the findings reported by Reyes et al, the performance of the Pneumonia Shock score in our study cohorts (both discovery and validation) was similar when evaluated for 30-day mortality as seen in Figure 1 (AUC [95%IC]: 0.76 [0.69-0.83] and AUC [95%IC]: 0.81 [0.76-0.86], respectively). When reviewing the findings by Reyes et. al., it appears that 1-year mortality in their cohort is the only time point at which there may be significant differences between the performance of SAPS-II and the Pneumonia Shock score. With overlap in confidence intervals, additional statistical analysis is required to accurately determine whether the difference in discriminate function is significant at each time point. Our additional analysis, combined with the findings by Reyes et. al., supports the utility of the Pneumonia Shock score to accurately predict ICU and 30-day mortality. Whether the Pneumonia Shock score may predict outcomes beyond 30-days remains to be investigated in robust prospective studies to better clarify the ability to predict longer term outcomes.

None of the authors has any potential conflicts to disclose.

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Figure 1. Performance of Pneumonia Shock score in the discovery and validation cohorts. Receiver Operator Characteristics (ROC) curves were employed to determine accuracy of the Pneumonia Shock score to predict 30-day mortality in the ICU. The Pneumonia Shock score performance, exhibits a high discriminative accuracy in both discovery and validation cohort, with an AUC (95% CI) of 0.76 (0.70-0.82) and 0.81 (0.77-0.85) respectively.

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