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The authors reply

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We thank Georges and colleagues for their interest in our article evaluating the comparative effectiveness of macrolides vs. fluoroquinolones when paired with a β -lactam for empiric treatment of severe community-acquired pneumonia. Our article describes a retrospective population-based cohort study using multilevel regression models with treatment regimen and propensity score as the independent variables. The outcomes of interest were 30-day mortality and length of hospital stay, and we demonstrate a statistically significantly reduced length of stay observed in the macrolide group. In addition, we performed a subgroup analysis of only patients who received antipseudomonal β -lactams with similar results. We recognize that the observational nature of our study was an important limiting factor. We are confident, however, that our methodology allows for clinical useful conclusions to be drawn from our results.

Although data on specific severity scores were unavailable, all patients in the cohort met the accepted definition of severe disease by virtue of ICU admission (1). We included other potential markers for disease severity such as comorbid conditions, mechanical ventilation, and vasopressor use (as well as any other variables found or presumed to be significantly different between the two treatment groups) in the propensity score. Our inclusion of a propensity score in the multilevel regression models allowed us to adjust for these variables. It is true that a wide variety of β -lactams were used in the study, but this variety existed in both treatment groups and across a vast variety of practices and hospitals as accounted for in the analyses. Additionally, the finding of similar results in our subgroup analysis of only those patients receiving antipseudomonal β -lactams further supports our conclusion.

Although fluoroquinolones may offer advantages over macrolides in specific clinical situations, our data support that the β -lactam plus macrolide combination is superior to the β -

lactam plus fluoroquinolone combination in the setting of empiric therapy for severe community-acquired pneumonia. The mechanism behind the improved outcomes remains to be elucidated, but our findings are in line with several previous studies, which found macrolide combination therapy to improve outcomes over both fluoroquinolone monotherapy and combination therapy (2–5). Ultimately, our hypothesis driven study further reaffirms the need for well-designed randomized clinical trials.

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