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Letters to the Editor

## Epidemiology and risk factors for *Clostridium difficile*-associated diarrhea in adult inpatients in a university hospital in China: Methodological issues



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To the Editor:

We read with interest the article recently published in the *American Journal of Infection Control* by Tang and colleagues.<sup>1</sup> The authors investigated the risk factors for *Clostridium difficile*-associated diarrhea at a university hospital in eastern China.<sup>1</sup> Although the study reported several interesting findings, several methodological issues must be considered.

First, the article does not mention which method was used to select the predictors included in the multivariable analysis. As shown in Table 2,<sup>1</sup> the authors included only length of hospital stay ( $\geq 6$  days), comorbidity (e.g., diabetes), and treatment type (e.g., coloclisis and proton-pump inhibitor) in the multivariable analysis. This is puzzling, as their univariable analysis showed statistically significant ( $P < .05$ ) associations for other predictors, such as the use of different types of antibiotics (e.g., cephalosporin and fluoroquinolones). Investigators normally conduct multivariable analyses using a stepwise method, selecting the variables to retain using statistical criteria, or they select predictors according to their clinical relevance.<sup>2</sup> However, the approach used by Tang and colleagues<sup>1</sup> is not clear.

Second, the differences in odds ratios between the univariable and multivariable models for some predictors (e.g. comorbidity with diabetes) were relatively small. Generally, it has been reported that the unadjusted exposure-outcome should be changed by a certain percentage (e.g., 10%) in the multivariable analysis. When this is not the case, it is likely to be caused by the degree of residual confounding.<sup>3</sup>

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### References

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Conflict of interest: None to report.

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## Regarding “Epidemiology and risk factors for *Clostridium difficile*-associated diarrhea in adult inpatients in a university hospital in China: Methodologic issues”



To the Editor:

We appreciate the interest in our study and would like to respond to the methodology-related issues raised by Safiri and Sullman in their letter to Editor. The letter concerned 2 statistics questions, mainly variable selection in the multivariable analysis and confounder identification.

### VARIABLE SELECTION IN THE MULTIVARIABLE ANALYSIS

The forward selection method was used in our study and we apologize if not mentioning that in our article made Safiri and Sullman confused. We did mention that “some well-acknowledged factors had no significant difference in the study, such as age  $>64$  years and nasogastric tube feeding, but they were also included for multivariate logistic regression alone