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Nosocomial Transmission of Severe Acute Respiratory Syndrome: Better Quality of Evidence Is Needed

To the Editor—We would like to comment on the article by Yu et al. [1] regarding the risk factors for nosocomial outbreaks of severe acute respiratory syndrome that occurred in some hospital wards and not in others. The authors performed a retrospective case-control study at the ward level and found that several environmental or administrative factors and host factors, such as oxygen therapy or bilevel positive airway pressure ventilation, were associated with the occurrence of these outbreaks. We wish to discuss the study's most important methodological flaws, which may invalidate the results, and to emphasize some points that should be taken into consideration in future studies.

First, the definition of a superspreading event is questionable. The authors made the strong assumption that the clustered cases were all secondary to a single identified (or unknown) index case and that transmissions occurred within the ward. The assessment of the transmission chain seems to be based solely on the timing of events, although it is possible that all transmissions within a "superspreading" event were neither nosocomial nor related to the putative index case.

Second, the measure of the exposures suffers from very important limitations. Data collection was performed 1–3 years after the events, leading to an important recall bias. Some exposures were of ecological nature (applying similarly to all patients in the ward at a given time), thus making it impossible to be sure that a given patient was really exposed to the risk factor under consideration. Finally, some exposures were measured during a 10-day window period after the index patient's hospital admission (or the first case of the cluster); consequently, some exposures were measured after the transmission event, violating the basic principle that the risk factor needs to precede the disease.

Finally, it is possible that some wards experienced >1 outbreak of infection or that several patients with severe acute respiratory syndrome were admitted, but the authors failed to explain how they dealt with this type of situation and the selection procedure. Because transmission was more intense at the beginning of the outbreak of severe acute respiratory syndrome, a selection bias may have played a role, resulting in most of the case wards being selected at the beginning of the outbreak and most of the control wards being selected towards the end of the outbreak and, therefore, jeopardizing any comparisons.

Study of this topic poses difficult challenges and relies on observational and retrospective studies. However, interventions to reduce infection risk are fundamental to promote safety in the workplace, and health policy makers face the difficult dilemma of balancing needs and available resources. Although there is little doubt that some procedures may increase transmission [2], the risk associated with several respiratory support techniques observed in the study by Yu et al. [1], in addition to the aforementioned limitations, cannot be interpreted without information about individual compliance with standard infection-control measures and use of personal protective equipment [3, 4]. Robust data are critical for policy making, and sound recommendations require a better quality of evidence.

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