Nonventilator hospital-acquired pneumonia: Where do we go from here?

To the Editor:

We appreciate the interest of Kaier et al in our publication. Clearly, we all agree that hospital-acquired infection is a serious health care issue deserving of the highest level of empirical inquiry.

The first point worth mentioning is that the article of interest was focused on a specific type of hospital-acquired infection, namely nonventilator hospital-acquired pneumonia (NV-HAP). Because we conducted secondary analyses of an existing dataset (2012 National Inpatient Sample), the only method available for case identification was the use of ICD-9 codes. Consistent with the Centers for Disease Control and Prevention recommendations, the NV-HAP analytic sample included only patients with at least a 48-hour length of stay (LOS). As Kaier noted, because NV-HAP is a time-varying exposure on which the NV-HAP can only impact LOS and cost once the infection has started, we attempted to mitigate for this bias following CDC guidelines.

By definition, these patients were admitted for a variety of reasons other than NV-HAP; therefore, we did not attempt to quantify costs directly attributable to NV-HAP. As an alternative, we created 4 additional comparison groups and compared total hospital charges among all the groups using both descriptive statistics and multivariate analyses. Although matching by comorbidities, procedural groups, or admitting diagnoses was not possible, these differences were accounted for to the extent possible in the multivariate analyses. Even without the multivariate analyses, in a dataset this large (N = 479,720), we reasonably assumed there were a large variety of comorbidities and diagnoses existent in all randomly generated comparison groups.

Furthermore, because we do not know the impact of the time-dependent bias, we cannot say with certainty whether our analyses over- or underestimated the LOS and cost impact of NV-HAP on the cost of hospitalization. What we can say is that the overall acute care cost was greater for patients who developed NV-HAP at some point during their hospital stay than for any other comparison group, with the exception of patients with ventilator-associated pneumonia. The same was true for mortality. We think the emerging body of data on NV-HAP is providing us with broad-based, relevant data to describe the incidence and impact of NV-HAP, and a foundation on which to build future research.

Conflicts of interest: None to report.

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"Effectiveness of a shielded ultraviolet C air disinfection system in an inpatient pharmacy of a tertiary care children's hospital" Lacks scientific evidence

To the Editor:

We recently reviewed the Brief Report by Guimera et al.[1] The article concludes that a novel air purification system was effective in decreasing viable airborne microbes and that these units are advantageous over other technologies currently available. We disagree with both conclusions and are dismayed that this report was published.

In the conclusion of their article, the authors indicate that further studies would be required. However, the data collected during this initial study were not sufficient for them to conclude that this device was effective. The sample size of the study is concerning. Viable environmental monitoring is a snapshot in time, and the bioburden of a cleanroom is constantly changing. Although the sample size may have been statistically significant, the authors did not account for this issue. Because of the dynamics of a cleanroom, this limited data set does not show that the air purification system was the sole reason for the reduction in bioburden. To secure a truly significant data set upon which valid conclusions could be made, a weekly collection in all locations preinstallation and postinstallation for a year would be needed. This would provide representative data of the state of control in the cleanroom.

The article does not include critical information about the operating conditions of the cleanroom during sampling. Personnel are the greatest source of contamination in a sterile compounding controlled environment. The authors do not indicate whether the samples were collected under dynamic operating conditions or the number of people who were present in the room. This information is crucial to ensure that the preinstallation and postinstallation sampling occurred under the same conditions.

The study also indicates that there were no changes in cleaning or disinfection practices between the sampling points. However, there was no indication whether any other changes, such as garbing, material transfer procedures, or conduct or number of personnel and compounding procedures, occurred. Positive changes to these aspects could greatly reduce the amount of microbial contamination in a cleanroom.

Information regarding the media and incubation parameters was missing. The type of media used for sampling is important and should have been supplied. Incubation of the samples is another piece of critical information. The fungal samples were incubated under the same conditions as the bacterial samples, which at 32°C ± 2°C is warmer than would be expected for this type of sample. Ideally, the fungal incubation temperature is 22.5°C ± 2.5°C.

Information about USP Chapter 797[2] was misquoted in the introduction paragraph. The action level for an International Organization for Standardization (ISO) class 5 space is >1 CFU/m^3, and an anteroom may be ISO class 7 or ISO class 8 depending on the types of buffer rooms it services. It was also indicated that viable airborne particles must be assessed as part of certification. This