Reviewer's report

Title: Five-Years Surveillance of invasive Aspergillosis in a University Hospital

Version: 1 Date: 9 September 2010

Reviewer: Benjamin Park

Reviewer's report:

This paper describes surveillance for Aspergillus infection at a University Hospital. The authors use an interesting method of case-finding that is worthy of exploration. However, the denominator used to calculate incidence is not valid and should be reconsidered.

Major revisions:

1. Overall, the English writing could use improvement.

2. When did construction occur exactly? Where was the construction in relation to patient care areas, and what types of activities were conducted? Is this why the surveillance was initiated in the first place? This is important, because since construction is a known source of Aspergillus and varying exposure can (potentially) influence incidence.

3. Please provide more details on the case finding. This is a fairly novel method and may be useful for preventionists looking to employ a similar system. In particular, how did these "triggers" work? Was it computerized, or did the personnel in the departments know to "flag" any patients meeting screening criteria? Was an audit performed to evaluate the completeness of the screening method?

4. Why did the definition of nosocomial require a negative respiratory culture prior to the index sample? I imagine that many did not have a respiratory culture obtained when they were not ill, so this criterion does not provide an accurate picture of the numbers of nosocomial infections. I assume this is why 58% were undertermined to be nosocomial or not.

5. Additionally, varying levels of respiratory cultures, as a part of the criterion described above, can artificially change the numbers or trend of those meeting the definition of a nosocomial infection. This introduction of surveillance artifact is particularly important when calculating trends. Therefore, the decline in nosocomial aspergillosis that the authors describe may be subject to bias.

6. The use of patient-days as a denominator is valid for nosocomially acquired aspergillosis. However, it is not a valid denominator for outpatient-acquired disease. This is because in order to be in the numerator, one must be included in the denominator. An outpatient with hematological malignancy or transplant is not included in the denominator (until they are ill with disease and present to the hospital). This is important, because changes in the outpatient population will not necessarily be reflected in the inpatient census. This is a major struggle with
performing surveillance for non-nosocomial invasive mold infections, because capturing the at-risk population (outpatients) is particularly difficult. I would recommend removing incidence calculations and trends from non-nosocomial disease.

7. What was the possible outbreak in Feb 2003? What actions were taken to investigate this, and how was it determined that it was not an outbreak?

8. Figure 3 is missing.

Minor essential revisions:

1. Background. Consider citing more recent epidemiological surveys on Aspergillus, including the two TRANSNET publications (CID 2010; Pappas et al., Kontoyiannis et al).

2. Please capitalize and italicized Aspergillus.

3. Results, line 8. How many proven cases were nosocomial?

4. Crude mortality was in-hospital mortality? At what time point (30 day, 14 day, etc.)? Persons who were discharged were assumed to have lived? Were any discharged to hospice?

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.