Reviewer's report

Title: Hospital-acquired Fever in Oriental Medical Hospitals

Version: 0 **Date:** 04 Jan 2017

Reviewer: Bevin Cohen

Reviewer's report:

General comments:

--The paper is clearly written and easy to follow. The topic is interesting, particularly in light of increasing use of Oriental medicine globally.

Background:

--The authors should provide a reference or further explanation for the following statement: "In Korea, patients with cerebrovascular accident and elderly patients tend to seek oriental medical care more often than other patients." I believe this is cited as #13 in the discussion.

Methods:

--This is a minor comment, but the authors may wish to clarify that the IRB waived the requirement for informed consent. "Consent from the patients was waived," almost sounds as if patients waived their rights.

--Suggest changing "infections" to "fever" in this sentence since, it seems, the study evaluates all fevers regardless of whether they were caused by infection. "If a patient was transferred from another OMH where he or she was admitted for more than 48 hours and where fever started within 48 hours of hospitalization, these **infections** were also considered hospital-acquired."

--The authors should clarify how they reviewed patients' records, since there were >11,000 patients. Was this done by manual review of each chart or via electronic records?

--The authors should clarify who adjudicated whether the CDC infection criteria were met and with what data (again, manual chart review vs. electronic records vs. infection control department records, etc.).

--The authors should also clarify who determined fever attribution and specific data sources (see above).

Results:

--I'm not an expert in this area but I wonder how the authors can confidently attribute 7 and 1 cases of fever to moxibustion and cupping, respectively. Is it possible that these fevers had some other unidentified etiology?

--The paragraph describing Table 3 is very hard to follow and repeats information that is in the table. Suggest cutting this down significantly.

--In Table 3, the Ns for some of the conditions (e.g., hematologic malignancy and chronic kidney disease) are too small for comparisons by Chi-square to be appropriate. Since the numbers are so small it may not be meaningful to include these.

--In Table 3, some of the "comorbid conditions" really are interventions (e.g., receipt of various therapies). Suggest changing the subheading.

--In Table 3, were the laboratory findings obtained before or after the onset of fever? If after, these would more appropriately go in Table 4 because they would be clinical outcomes of fever, not causes. The authors should specify either way. **Importantly, if WBC is measured during/after onset of fever, it cannot be a risk factor for febrile illness and must be removed from the analysis in Table 5.

--Table 5 is slightly confusing. Is it the case that all of the factors under both subheadings were included in the same model and the authors flipped the direction of the ORs under "non-infectious" to be easier to interpret? Or are these two separate models? Personally, I think it is more intuitive to show the ORs going in the opposite direction (i.e., >1 vs. <1)—especially if these came out of the same model (which they should have).

--In Table 5, it is not clear how the authors determined which factors would be included in the model. Presumably there is a p-value cutoff from Table 3 but this should be noted.

Discussion:

--The authors note that, "In OMHs, more patients with solid cancer (55.9% vs. 32.9%, $p<0.001$) and history of anticancer chemotherapy (31.3% vs. 12.1%, $p<0.001$) have non-infectious fever. In these patients, moxibustion was more commonly used, and herbal medication was less commonly prescribed. Moxibustion was more commonly used in the non-infection group, while herbal medicine was more frequently prescribed to patients in the infection group." If this is so, it would be important to include these therapies in the multivariable model in Table 5.

Conclusion:

--"In this study, incidence of nosocomial fever was not higher in OMHs…" The authors need to specify what they are comparing to. Data from other studies of Western medicine hospitals? If so, repeat references here.

-- "…Herbal medicine was the most common cause of drug fever and invasive oriental medical procedures caused procedure related fever more frequently than Western medical procedures in OMHs." I don't think data are presented to support either of these conclusions. If this is the case, please break down the data in a way that supports these conclusions.

Editorial comments:

--The table abbreviations are for short terms (e.g., HTN for hypertension) and seem unnecessary.

--HAF and nosocomial fever are used interchangeably throughout. If an abbreviation is defined it should be used consistently. Personally it is easier to read as "nosocomial fever" since this term is short. Either way, should be consistent.

--Decimal points for percentages are not consistent in the text (ones place, tenths place, hundredths place all are used).

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

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