Reviewer's report

Title: Prevalence of Staphylococcus sp and S. aureus in wounds of hospitalized patients in inland regions of the Northeast of Brazil and associated factors: a cross-sectional study

Version: 2 Date: 10 April 2014

Reviewer: Meghan Davis

Reviewer's report:

In this paper, Gilmara Celli Maia Almeida and colleagues report on the prevalence of presumptive S. aureus and other staphylococci isolated from wounds. This work is novel in that it provides data from a geographic area not previously described.

Major Compulsory Revisions

1. Interpretation of the results is hampered by gaps in reporting the methodology. Minor points below address specific gaps. Particular attention should be given to the statistical analysis section, since, as written, the reader cannot necessarily replicate the analysis. Of equal concern is the use of growth on mannitol salt agar to identify S. aureus, which ideally should be done using PCR amplification of aureus-specific nuclease gene if possible. Other staphylococci may appear with the same phenotype as S. aureus on MSA. Other staphylococci, such as the staphylococcal intermedius group (SIG) should be differentiated from S. aureus if possible because their epidemiology and outcomes may differ. If this is not possible, changing “S. aureus” to “coagulase-positive staphylococci (CPS)” or “presumptive S. aureus” would be appropriate to help the reader understand that the assumption that these staphylococci are S. aureus is exactly that, an assumption, particularly given the geographic novelty of this study. In particular, bite wounds from animals may be seeded with non-aureus staphylococci – were there any such wounds in this evaluation?

2. The discussion is quite lengthy and reads as a literature review more than a true discussion. Consider moving the second paragraph to the top of the discussion section and leading with your most important findings. Consider trimming the verbage in the discussion section overall. Important limitations should be discussed, such as the choice to perform just nasal sampling when the implications of the work may be for community MRSA and MSSA strains. CA-MRSA in other countries has been shown to be associated with skin carriage.

Minor Essential Revisions

1. Methods gaps:

a. General – what was the age range? Were children included? If participants under 18 were included in the study, these should be examined separately to determine if they have higher risk than the 18-65 group (as has been
demonstrated in other studies), and as a sensitivity analysis, they should be dropped and the models re-run to determine if they are influential on the tested associations. If they are not, this could be indicated through inclusion of a single line to the results indicating that this sensitivity analysis was performed and no changes in inference were observed.

b. Sampling days – how were these chosen (convenience vs regular schedule), and how many days were allocated to sampling? This is important to understand if the choice of sampling days introduced bias.

c. Culture and microbial identification – seen major points above. Also, please indicate how much (e.g. 10ul) was transferred to MSA.

d. MRSA and PCR screening – were only cefoxitin resistant strains tested for meca? If all were screened regardless of resistance phenotype, please note this. If only cefoxitin-resistant CPS were screened, please indicate, because some non-aureus staphylococci, e.g. S. pseudintermedius, are less likely to exhibit phenotypic cefoxitin resistance (indeed, CLSI recommends oxacillin screening instead) but may harbor the meca gene.

e. Statistical analysis: Overall, please reduce description of the descriptive analysis and focus on adding detail about the variables and models. How were prevalence ratios calculated (what model? Are these PORs or PRs?) Please explain “to be included in tests of association, the quantitative variables were categorized by their median values” more directly – were these converted to categorical variables? Include (College Station, TX) after the reference to Stata 10.0. For Poisson regression, I suspect you mean (in stata code) poisson y x1 x2 …xn, vce(robust)” for which there are references to consider including:


2. Results section: recommend displaying the demographic data presented in text form as a table instead – a classic Table 1 would be appropriate. This will result in renumbering the remainder of the tables. Also, why “widows” and not “females” to be parallel to the men, or does this mean married versus unmarried?

3. Discussion section, paragraph starting “The most common location..” – in the presentation of bacilli versus staphylococci, please comment on the mechanism by which findings of bacilli would exclude staphylococci, with referencing. Do you mean through competitive exclusion?

4. I’m uncertain if reference 4 is the most appropriate to use for line three in the introduction, since this references a potentially highly-exposed worker population and not the general public.

5. Copy edits:

a. Abstract: end of results section, change “from individuals that died” to “from individuals who died” – this change needs to be made elsewhere in the paper as
b. Introduction, sentence 3, change “commonly found in skin” to “commonly found on skin” – also note that the progression of logic from sentence 2 to sentence 3 is unclear.

c. Introduction, paragraph 2, capitalize Pseudomonas.

d. Methods, “Data Collection” section, recommend change “such as” to “including” for lists of variables. Please explain what consumer goods are. Consider changing “contained questions” to “evaluated factors” in the second sentence. Consider changing “serum” to – “saline”(?) since serum suggests blood serum and you likely mean saline. If you do mean blood serum, please elaborate.

e. Methods, “Culture” section, recommend deleting “allowing the growth of colonies” in the second sentence as this is redundant. For the acronym for coagulase-positive staph, SCN is used – is this supposed to be CNS for the English abbreviation?

f. Please standardize your use of significant digits throughout the manuscript. For example, in results, “a mean of 3.84 years of education (SD = 3.7)” could be reframed with both using two significant digits as “a mean of 3.8 years of education (SD 3.7)” In particular, consider presenting all PRs to three significant digits instead of four, e.g. 1.48 not 1.476. P-values greater than 0.10 can be provided with three significant digits, e.g. 0.13 not 0.126.

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

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that i have no competing interests.