Reviewer's report

Title: Multidrug-resistant Gram-negative Bacteria and Staphylococcus aureus Colonization of Healthy US Military Personnel in the US and Afghanistan

Version: 1 Date: 22 October 2012

Reviewer: Kyle Petersen

Reviewer's report:

Major Compulsory Revisions:
The paper is too long and tries to be all encompassing. I think the data on E coli resistance are compelling and present an important discovery in the field, the MRSA and MSSA data are limited in scope, do not add to the discussion, and are a completely different pathogen with different transmission dynamics so it is difficult to compare the 2. For this reason the authors should strip all the references results and discussion and mention of Staphylococcus out of the paper. This can be submitted as a separate paper at a different time should they choose to do so. The focus of the article should be on E coli and ESBL findings of colonization in troops at home and in the combat theater. This could allow for a little more commentary in the discussion about GNR MDR organisms and their epidemiology, potential problems with peri-operative antibiotic selection, findings of previous investigators of MDRO infections in combat wounded etc. This suggests to me that some MDR is acquired in the hospital, but a fair amount is present and selected for with broad spectrum antibiotics when the patient is critically ill.

There are no female participants. This is a major limitation of the study and needs to be commented more in the discussion, does this potentially bias the findings? It certainly limits the applicability to most other normal populations with drug resistance. There is no comment on race variation in the population, was this data collected? Both sex and race could be important modifiers as to host immunity and predisposition to colonization I find it is curious this was not collected.

Minor essential Revisions:
Page 5 Sentence starting with While MDR-GNB...[6]. is confusing and poorly written, I think you are trying to say drug resistance has been a problem since the 1940s, which is not in the 21st century, or staph has been a problem in casualties?the whole thought should be re-written. If its about staph just drop it anyhow as I think this paper should be about e coli.

Page 14 Para that starts with There were 49 US... Combine sentences and Re-write to say there were significant decreases in susceptibility to amp, amp/s, cipro and tmp/smx then give the percentages and p values, this would condense the length of these sentences substantially.

Page 18 discussion. Comment on significance of 5 fold increase (sig, highly
signif etc.) it strengthens your argument.

Page 20 last sentence of para Additiional studies...Afghanistan. this is speculative. It is doubtful that Afghans have the financial means to give TET to their livestock and no one ate off base by your accounts. I guess you could try to find vendor source and go back and look at use of antimicrobials but this would be extremely hard to do. Might replace with a general statement about global increase in antibiotics in food esp. meats.

Page 23 Do you have data to suggest MDR is seasonal? A ref here would be helpful.

There are reports of Amp/Sulb resistance in surgical patients undergoing bowel prophylaxis in civilian trauma surgery. you might comment on this here.
Schnuriger et al 2010
add discussion about lack of female subjects here somewhere.

There is lots of discussion about PFT in the results but little or none about clonality in the discussion, might be good to say something here like there was/was not clonality. This was/was not different than previous studies with gram negative pathogens. etc. It looks like a polyclonal phenomenon with no point source to me.

Remove Tables 6&7

Discretionary Revisions
Methods page 9. Why did you not test for other Beta-lactamases like Amp-C, KPC etc. if CTX TEM and SHV were present but not phenotypically active, these might have been as well, and NDM originated in this part of the world. It would have made a better paper.

Table 2 the last 2 data sets (sites colonized total gram neg isolates) might be better pulled out as a separate bar graph or pie chart as it would be easier to read.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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'