Reviewer's report

Title: Staphylococcus aureus nasal carriage in Ukraine: antibacterial resistance, and virulence factor encoding genes

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Reviewer: Steven Tong

Reviewer's report:

Although this is a worthwhile study and sheds light on S. aureus carriage in an under-researched population, genotyping of isolates would add considerably to the study.

Major

I suggest that some form of typing be performed to make this manuscript publishable - probably spa typing as this is cheaper and quicker than MLST and results are comparable. This will allow a description of spa types circulating in Ukraine compared to that in the rest of Europe (through the EARSS network).

The manuscript could be considerably shorter. The background needs only to briefly discuss the toxins - perhaps refer to a review article for PVL, and similarly for the others. The paragraph on local Ukraine context is important. Context from neighbouring countries in the former Soviet state should also be included. The methods section can be shortened by referring to published methods elsewhere (e.g., antibiotic susceptibility testing by EUCAST standards - don't need all the additional details; similarly for DNA extraction techniques).

Why were only 99 strains tested and not the whole 144? Why were certain patients excluded? This needs to be clarified in the methods. If it is because a focus on CA-MRSA is desired, this needs to be stated clearly upfront. If this is the case, why are the non CA-MRSA not included in the study?

How is CA-MRSA defined?

Rather than tables 2-4, I suggest the main points be summarised in the text with key resistance percentages (as is done). The data can be presented as a supplementary table with each isolate listed in rows and resistance / virulence genes in columns (as absent or present).

The discussion can be shortened. There is quite a lot of speculation. So just provide the context compared to other countries for prevalence of MRSA / PVL etc. Your data does not allow you to infer reasons for why these differences may be present.

Minor

The 'Tested isolates' paragraph should be in the results.

Please clarify if genes for PVL were indeed looked for? PVL is encoded for by the lukF and lukS genes. The listed primers appear to be for lukE lukD (and thus
not PVL). This will clearly impact on the results.

I would just call mecA positive strains as MRSA and mecA negative strains as MSSA.

**Level of interest:** An article of limited interest

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

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

**Declaration of competing interests:**

No competing interests.