Reviewer's report

Title: Nationwide Trends in Molecular Epidemiology of Methicillin-resistant Staphylococcus aureus, Finland, 1997-2004

Version: Date: 18 April 2007

Reviewer: Barbro Olsson-Liljequist

Reviewer's report:

General
This is a well-written report and an interesting contribution to the field of molecular epidemiology of MRSA on a nationwide basis. Its main advantage is that it is based on a complete set of MRSA isolates from a defined geographical area and time period, thus giving an insight into the trends of MRSA evolution. There are, however, some points that need clarification and possibly also added information.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
1. There is a need for clarification and definitions of what is an isolate, a strain, a type (PFGE type, sequence type), a PFGE pattern, a clone, an outbreak/epidemic strain. The manuscript should be thoroughly revised so that the nomenclature used is clear and understandable. It is suggested that the term "strain type" used on several occasions be substituted by either strain or type, and that the authors explain if the term is based on PFGE pattern alone or PFGE pattern combined with other characteristics as well.
2. Following comment 1., it is sometimes unclear from Table 1. and Figure 2. which definitions are used. For instance, the word clone is added in Table 1. for FIN-4 and FIN-10, but not for FIN-7 and FIN-3. Looking at Figure 2. and the dendrogram, it looks as if FIN-15 has > 80% similarity with FIN-1 (and a,b,e) but still has been given a new number. On the other hand, FIN-2e have different characteristics (ST, SCCmec) from FIN-2a, c, and d but is still within this "group". So the question is if not only the PFGE pattern but also other characteristics have been included in the numbers. Detailed explanations in the Methods section are needed, and Table 1. and Figure 2. revised accordingly.
3. One characteristic of MRSA strains which is much debated today is the presence of genes coding for PVL. In the present manuscript such data is missing and only commented upon in the Discussion. It is suggested that this information be included for the type strains since it would add much to the global comparability of data and also to the understanding of epidemiology and clinical presentation of MRSA.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
4. In Tables 1. and 2. it could be clarified to the reader that strains are listed in the order of overall prevalence during the study period.
5. Of the ten most common MRSA types listed in the tables, all but two are described in more or less detail in the text. For the completeness of information, it is suggested that also the last two (FIN-15 and FIN-2e) are described.
6. On page 9, line 14, it should be rephrased: "three strains which we previously..." for clarification.
7. Page 11, line 1: "...were derived from ...".

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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