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Reviewer Comments

This exploratory study conducted by Jones et al. was to test the development of a new LEPS (liposomal encapsulation of polysaccharides) vaccine geared for best in class efficacy. The new vaccine was tested against 20 serotypes of *S. pneumoniae*. Protein homology, dose limits, toxicity, and MTD were studied and reported in the study. The results showed that this new LEPS vaccine is capable of surpassing the effectiveness of the current polysaccharide-conjugate options.

The major finding in this paper is that this new vaccine the researchers are testing is better than the current options on the market.

The abstract does summarize the article accurately. It ties it all up with the findings of the paper, however, since this is an exploratory paper into a new vaccine, assumptions need to be toned down a tad.

Yes, the relevant literature goes into why pneumococcal pneumonia is such a problem and follows it up with giving background information on IgM and IgG and why they are important. Lastly, the authors give literature that describes where the problem is arising which leads us into the reasoning of finding a new vaccine. They have 25 articles cited within the introduction, which I believe is a sufficient amount and is cited correctly. At the end of the introduction the researchers tell the reader that they have developed the next generation LEPS vaccine and tested it for safety concerns. The research question is not clearly stated.

The researchers are a little confusing when it comes to the bacterial and cellular strains section in the methods. In the introduction they say that they are demonstrating efficacy against 20 serotypes, however, in the methods, they state that there were greater than 70 *S. pneumoniae* serotypes in the study. With testing efficacy on 20 serotypes is not the greatest number, it is a start and I would like to see more research done in the future when it comes to testing the vaccine against other serotypes.

The group uses positive correlation when evaluating the results of the immune-absorbance assays that were conducted. For all the other tests performed, a 95% confidence interval was used. This statistic is okay for preliminary data since confidence intervals don't tell you about the distribution of the individual values. Statistical significance needs to be determined and discussed in the paper.

The results are presented in a clear and informative way. Each of the graphs presented have an explanation with what is being shown to the reader.

The results do cohere to the research question. I believe that the results section was done well and was easy to understand.

The results do cohere to the tables and figures.

The tables and figures are clear and precise for the most part. I would like to see statistical significance for each figure. I would also like to see more of a discussion for each of them.

Since this article is exploratory, it does not add to existing literature, it is the first paper to present on this LEPS vaccine.

Yes, the discussion points really tie in all of data into an organized ending point.

The paper gives 0 implications for public health. It can be assumed that the group will need to add onto this paper with more data.

This paper should be provisionally accepted.