Reviewer’s report

Title: Reference values of spirometry for Finnish adults

Version: 3
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Reviewer: Anders Løkke

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General comments:
The aim of the article under review is: “to produce for clinical use in Finland new reference values of flow-volume spirometry from healthy non-smoking adults with a wide age range with modern flow transducers and with the most recent statistical modelling. We also aimed to assess differences between the new reference data, existing Finnish reference values, other European reference values and the new global GLI 2012 reference values”.

The aim and the findings are of interest to Finnish doctors and health care professionals. However because of the sample size and the age distribution it adds little to existing knowledge in general.
Maybe you should consider a national publication in Finland?!

Background:
This part should undergo a Major Compulsory Revision.
It is composed by very general parts that could be left out.
The part about people getting higher is also out of place since height is one of the variables determining lung function.
Instead focus should be on describing in more details why new equations are needed in Finland and why national equations are important.

Methods:
This part should undergo a Major Compulsory Revision.
It is very nice to see that you have data from different parts of Finland.
The problems are:
- Relatively small sample size compared to the age span - especially for males.
- Instead of listing all in- and exclusion criteria it would be way better to shows them in a box/figure – then you could also get rid of the summary.
- You state several times – also in the abstract – that the sample is non-smoking thus allowing up to 10 pack years of smoking – this is too much in my opinion!
- Did you use post bronchodilatation values or not – this should be addressed?!
Results:
This part should undergo a Major Compulsory Revision.

Some of the texts seem to belong in the discussion.
Try to leave out things that can be interpreted directly by the figures and tables and also leave out some of the less interesting figures.

Table 1 is very confusing to read. It should be deleted. Instead write that there very no difference between the genders in the different centers.
Figure 1 should be a table showing the exact number of persons instead divided into 10-years age groups and 10 cm height groups because this is the interesting part of the article. It seems that there is a lack of young and old people. This should be addressed as well. Especially because the accuracy of the predicting tends to be weaker as age and height values get more extreme in both ends (very young and very old, very small and very high).

Table 3 demonstrates that your data set fits quite well with the existing Finnish data-set. This should also be addressed more in the discussion. Why do you think – because of small numbers in both?!

The comparison with other dataset is somewhat interesting but you fail to mention that the observed differences can also be caused (at least to some extent) by numbers – some of them have very large numbers and therefore are way more robust – especially in the ends.

Discussion:
This part should undergo a Major Compulsory Revision.

You start out with information that belongs in the background and some in the methods chapter.
You state several times that different dataset underestimates or overestimates the true Finnish values of different lung volumes and ends with this conclusion: “The present new reference values offer more close prediction of spirometric values for native Finns than any other published predictions.” but fail to mention or discuss that you think/consider your own measured values to represent the truth. This may also be correct however you do not discuss the above mentioned issue of numbers, pre- versus post bronchodilatation and smoking (would selecting only never-smokers affect the outcome?!).

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:

'I declare that I have no competing interests'.