PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Observational study of administering intranasal steroid sprays by healthcare workers
AUTHORS	de Boer, Marielle; Rollema, Corine; van Roon, Eric; Vries, Tjalling

VERSION 1 – REVIEW

REVIEWER	Wim Peersman Odisee University College, Belgium
REVIEW RETURNED	04-Mar-2020

GENERAL COMMENTS	This paper report the results of a small observational study about the knowledge of healthcare workers regarding administering intranasal corticosteroid sprays (INCS). I have the following comments and suggestions: 1. This study is based on a small sample and the results only apply to a particular region. Further research must determine to what extent this also applies to other regions and countries. 2. Since most patients did not take their INCS as described in the patient information leaflets, the approach of the authors to study the knowledge of the healthcare workers is interesting and important. However, this study is about the knowledge of the healthcare workers, and not about the actual instructions that the patients receive from the healthcare workers. This should be more acknowledged in the limitations of the study. 3. Is it possible to provide more information about the scoring of the demonstration of the technique by the healthcare workers? Was the demonstration video-taped? Was a score sheet used? Was the scoring done during the demonstration or after the demonstration? 4. Page 3, line 53 – 59: the description of the statistical analysis is not correct. The authors mentioned statistical methods that were not used in this paper (for instance: Pearson correlation, Spearman correlation, …) and other methods are not reported (Kruskal Wallis). This section should be corrected and written out more clearly. I suggest also to use a subtitle for this section. 5. Differences between categories of healthcare workers was examined for the total score, but not for the essential steps. It would be interesting to explore if there were differences between categories of healthcare workers in performing all the essentials steps. 6. The authors report a low participation of ENT doctors. I agree that the inclusion of five more ENT doctors would not affect the outcome

	significantly. However, is it possible to reflect on the potential for bias? It is also possible to report the response figures? How many healthcare professionals were contacted and how many agreed to participate at the study? Minor comments: 7. Table 1, step 15: "if two sprays per nostril are prescribed, repeat steps 11 through 16 for both nostrils" should be: " … repeat steps 8 thru 14 …" 8. Table 2: the statement that "all values are n(%)", is not correct since for 'age' the mean value is reported. 9. Table 3: is it possible to report also the 'median' for each category of healthcare worker? 10. Table 4: The numbering is incorrect.

REVIEWER	Emmanuel Prokopakis University of Crete School of Medicine
REVIEW RETURNED	18-Mar-2020

GENERAL COMMENTS	This is a quite interesting manuscript accessing a very intriguing topic. There is a number of limitations in this study, that they are addressed in the discussion section. Though, there is a clear message at the end. This manuscript adds to current rhinology literature. There are numerous suggestions regarding the use of more recent and up to date references in the text. More precisely authors are asked to: • Replace ref 1, with "Next-generation ARIA care pathways for rhinitis and asthma: a model for multimorbid chronic diseases. Bousquet JJ, et al. Clin Transl Allergy. 2019 Sep 9;9:44." • Omit ref 2. • Replace Ref 5, with "European Position Paper on Rhinosinusitis and Nasal Polyps 2020. Fokkens WJ, et al. Rhinology. 2020 Feb 20;58(Suppl S29):1-464." • Replace Ref 6, with "Rhinology future trends: 2017 EUFOREA debate on allergic rhinitis. "Scadding G, et al. Rhinology. 2019 Feb 1;57(1):49-56." • Replace Ref 7, with "Contemporary Use of Corticosteroids in Rhinology. Karatzanis A, et al. Curr Allergy Asthma Rep. 2017 Feb;17(2):11."

VERSION 1 – AUTHOR RESPONSE

Reviewer 1

Revision 1

We agree that further research must determine to what extent our results apply to other regions and countries. Since this is such an obvious thing we did not include it in our article.

Revision 2
Page 5, line 42-43; The sentence 'Thirdly, we studied the knowledge of healthcare workers, not the actual instruction patients receive from them.' was added. The recommendation to study whether correct instructions have an impact on the right administration by patients was already mentioned.

Revision 3
Page 3, line 38-39; The sentence 'During administration, this protocol was used as a scoring sheet, consisting of 29 steps. One point was given each time the participant performed a step correctly.' was added.

Revision 4
Page 3, line 45; The subtitle 'Statistical analysis' was added.

Page 4, line 1-4; The lines 'For the comparison of outcomes between populations, a Pearson correlation was used for continuous variables, a Spearman rho correlation for ordinal variables, and a Mann-Whitney U Test for categorical variables.' were deleted. We now replaced it with 'For the comparison of outcomes between populations, a Kruskal Wallis test was used. Post hoc analysis was performed using a Mann Whitney U test.'

Revision 5
The reviewer stated it would be interesting to explore if there were any differences between categories of healthcare workers in performing all the essential steps. We checked and no significant differences were found (as seen in the table below). We chose not to include this in the article, since we want the article to focus more on the fact healthcare workers do not know how to administer INCS and less on the differences between groups.

Difference in essential steps score

Healthcare worker	N	Median	Mean	Mean rank	P-value between groups*
Pharmacist assistant	20	4,5	4,1	43,25	,520
General practitioner	20	4	3,7	33,55	
Paediatrician	20	4	4	37,08	
ENT physician	15	4	4,1	38,17	

Tested using Kruskal-Wallis test. *P < 0.05

Revision 6
Page 6, line 2: We have added the reasons ENT doctors gave to not participate, being that they were to busy or not interested.

Page 6, line 4-8: We've added a section on the potential for bias. 'Thirdly, it is possible that healthcare workers only agreed to participate in this study when they felt an affinity with the topic. Greater interest might influence the knowledge of a correct administration technique. Healthcare workers with less affinity would possibly score lower. Given the disappointing results of the studied population, this only highlights the fact that the healthcare workers' knowledge about the correct administration technique must improve'.

Page 4, line 12-14: The reviewer has asked us to report the response figures. While looking for potential participants, we did not contact them individually, but reached out to their departments. Therefore, we are not able to include a response figure. We have however added the lines '10 ENT-departments, 7 paediatrician departments and 8 pharmacies were asked to participate in this study. General practitioners were approached at the GP's emergency centre and asked to participate on the spot' to the result section.

Revision 7
Page 10, table 1, step 15; ‘steps 11 through 16’ was replaced with ‘steps 8 through 14’.

Revision 8
Page 11, table 2; the line ‘all values are n (%)’ was deleted. ‘n (%)’ was added to the relevant values.

Revision 9
The median for each category of healthcare worker was added.

Revision 10
Page 13, table 4; The numbering was corrected.

Reviewer 2
Reference 1
With this reference, we report the prevalence of AR worldwide. This is reported more clearly in the reference already used, therefore we did not change this reference.

Reference 2
Information is already given in the first reference, therefore we agree it can be omitted.

Reference 5
We took the suggestion of the reviewer at heart and chose to change the reference, since it is more up to date and states the same information. Therefore, reference 5 is now ‘European Position Paper on Rhinosinusitis and Nasal Polyps 2020. Fokkens WJ, et al. Rhinology. 2020 Feb 20;58(Suppl S29):1-464’

Reference 6
We were unable to access this article.

Reference 7
We took the suggestion of the reviewer at heart and chose to change the reference, since it is more up to date and states the same information. However we changed it with our original reference 6 (Weiner, J.M., Abramson M.J., Puy, R.M. Intranasal corticosteroids versus oral H1 receptor antagonists in allergic rhinitis: systematic review of randomized controlled trials. BMJ, 317 (1998), pp. 1624-162). Therefore, reference 7 remains the same.

VERSION 2 – REVIEW

REVIEWER	Wim Peersman Odisee University College
REVIEW RETURNED	07-May-2020

GENERAL COMMENTS	My comments are well incorporated into the new version of the manuscript.