Reviewer's report

Title: How important is clinical decision support in the quality of telephone triage? A retrospective analysis of triage documentation

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Reviewer: Linda Huibers

Reviewer's report:

General
The authors describe a study on an interesting and highly relevant research area. Telephone triage has been used in out-of-hours care for decades and is also considered important in daytime care. It is a tool to manage the high demands and direct patient flows.

CDS is a relevant topic in this perspective. I would like to hear more about the CDS. Some systems automatically register all symptoms that have been asked in the contact, as the triage professional has to tick boxes in the flowcharts related to the presenting problem. In these systems the numbers of symptoms that are registered are automatically high. Is this the case with the CDS from your study? The aim is to assess the quality of documentation, but if all questions asked are automatically documented I can see that the quality of triage is also assessed (at least in the CDS group). Yet, this is not the case in the other groups, as they have to write notes themselves, which probably influences the level of reporting (especially negative symptoms). Also, if the CDS automatically pops-up questions, the nurses in the CDS group will ask more questions.

Abstract
Major:
1. Please include the aim of the study. Is it the quality of reporting in a telephone triage contact?

Minor:
2. The results section is quite short and does not give an explicit answer. More symptoms are documented when the CDS tool is used. But are all symptom features relevant? The conclusion also shows some results. Perhaps the authors could add some recommendations.

Background
Major:
3. The background is quite extensive – the authors should consider shortening it. For example, the third paragraph with examples can be shortened in my opinion, as well as the example on diarrhea and vomiting.

4. The aim of the study does not follow from the background. In the background information is given about telephone triage and the importance of asking the right
questions (so called critical symptom indicators) and the insufficient history taking described by some studies in this area. The quality of history taking seems to be the central point of the background - nothing is mentioned on the quality of triage documentation until the authors describe the aim.

Minor:

5. Statement of Poole: it would be interesting to read about the exact suggestions.

6. The authors state ‘critical symptom indicators’ – can they add a reference? In reference 9 they did not seem to use these critical symptom indicators, but professional clinical judgment.

7. Furthermore, the authors could add more references

Methods

Major:

8. The authors should check headings and clarity. The methods section is quite long – extra headings and paragraphs would help the reader to understand the methods chosen. The methods can be shortened at some place – for example in the paragraph ‘selection of triage documents to review’ there seems to be some duplicate information.

9. Can the authors describe something about their sample size calculation? How did they define the number of 50 per group? (selection of triage documents to review)

10. Did the nurses in the control group use the Expert RN? It is stated ‘… but fewer than 300 symptom assessments …’ which implicates that they already used the systems, only not for the notes that were selected. (selection of triage documents to review)

11. How did the nurses score the AAACN criteria? (documentation review process and measures)

Minor:

12. Please explain what you mean with the following sentence ‘Because telephone triage…., we needed 2 controls’ (Study design and overview)

13. Already add a short description of the methods, using three measures for assessing the quality of documentation (Study design and overview)

14. What is ‘panel’? Is that the number of patients connected/listed to this clinic? (practice setting)

15. I am not sure about the meaning of the following sentence ‘Forty-three of the symptom related … several hundred questions’. Can the choice of one particular symptom at the beginning of triage result in the pop-up of several algorithms, thus leading to several hundred questions? (clinical decision support tool)

16. The paragraph ‘documentation review process and measures’ is very important for the article, but its readability could be improved. Perhaps the authors could start with mentioning the three measures for assessing the quality
of documentation. Also they could consider moving the description of the scoring procedure, with three nurses who used criteria, and a majority rule plus complete consensus. (documentation review process and measures)

17. Add the AAACN recommendations as a supplement. (documentation review process and measures)

18. What list was used for assessing the triage notes? Could the authors give more information on this? (documentation review process and measures)

Discretionary:

19. The authors could move the sentence ‘Our study design included one CDS intervention group and two control groups’ to the beginning of the first paragraph, after the first sentence. (Study design and overview)

20. The mentioning of comparisons could also be move to the paragraph ‘statistical analysis’, or as a separate paragraph.

21. The authors could consider moving the information about nurse comparison (e.g. level of education) to the next paragraph.

Results

Major:

22. Note disposition is quite different for the ‘No CDS’ group, also concerning the small number of notes in each groups (even though not significant). What are the consequences following the low rate of emergency/911 disposition? The type of contacts in this group seems to be different, with less urgent contacts and follow-up care. The number of questions asked is likely to be lower in these contacts, as an urgent decision is prompted.

23. What about the median – does that give approximately the same results? Could the authors add SD to the mean, and 95% CI to the difference? (Table 2)

24. What are ‘… defects in triage note organisation’? Is that the same as ‘major documentation effects? Where is this information presented – in table 3? How is the 150 possible defects estimated? Can this information be presented in the methods? (paragraph 4 on page 12).

Minor:

25. Second paragraph presents a lot of information, which is not in a table. Please add ‘not in table’ and try to shorten this.

26. The authors present % of improvement – I would prefer to also read the exact number.

27. Perhaps the authors could present an overall score, for all criteria? (table 2)

28. It would be nice to have more detailed information about the scores per item – are there specific indicators that were problematic? (Table 2)

Discussion:

Major:

29. Third paragraph page 14: strictly, this study does not say anything about
as asking questions, but only about registration. In theory, the nurses could write down things that they did not ask in the contact.

30. The subjective assessment by nurses could also be seen as a limitation. Were the nurses blinded, or was it obvious for them which notes were from the post-CDS group, based on the lay-out of the notes?

31. How can it be that the no CDS groups actually scores worse than the pre CDS group? Can that be related to the number of urgent contacts in the sample? Are there other explanations?

Minor:

32. Is it correct to state that ‘triage documents authored by nurses trained in CDS but not using it showed no significant improvement’? For this group only one measurement was done, if I understand this correctly?

33. Perhaps the authors could add some headings, such as ‘main findings’, ‘strengths and limitations’, and ‘implications’.

34. The risk management standpoint could be interesting to mention in the background.

35. Is it indeed better that a doctor already had all the information? Should a doctor not check symptoms and perform his/her own history taking, also in relation to the time factor?

36. The first limitation: are telephone contacts not reviewed in malpractice claims? Another study would be to compare the actual conversation with the documentation, as has been done by Derkx et al.

Tables
The authors could improve the readability of the tables, and add more information (as mentioned above).

Table 2:

37. Per item there is some improvement, but is it clinically relevant? The mean is presented, I assume – please add this in the legend and table.

38. Please add what the numbers for ‘triage note content’ mean? Are these absolute numbers, mean?

Table 3:

39. Quality measures not entirely clear.

40. For the CDS group there were not defects – is this due to automatic registration?

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

Quality of written English: Acceptable
**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests