Reviewer’s report

Title: Process evaluation of a computerized decision support intervention to improve quality of primary care

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Reviewer: Kathrin Schlößler

Reviewer’s report:

Dear editors and authors,

I recommend publication in general (positive remarks 1+2). However I have one major issue (discussion of study sample;3) and some minor or discretionary comments (4-12).

1. Research question, study design and relevant conclusion

The research question is of interest and relevant to the readers of BMC Family Medicine. The authors analyze exposure to and experiences with a computerized decision support system (CDSS). To analyze the “active ingredients” of a complex intervention, process evaluation is essential1. The results can contribute to explain the somewhat disappointing results of the negative effect on main outcome variables in the evaluation study (C-RCT)2,3.

Furthermore this study adds a nice example of a triangulated approach4, using log-data combined with an empirical and theory-based self-developed questionnaire, to the body of implementation research. The authors draw clear conclusions which are relevant for the implementation of CDSS in study-settings as well as in daily practice.

2. Intervention and control group, statistical analysis

The intervention- and control-group are well defined according to the main study (C-RCT). However the difference in the intervention group (one additional module, “Heart failure”) compared to the 9 basic modules in the control group does not seem relevant considering exposure to and experiences with the CDSS. Consequently the authors do not compare these variables between groups, but focus on process evaluation within the whole sample of a representative subgroup of the main study and conduct only descriptive statistics (positive remark).

Major Compulsory Revisions:

3. Discussion of study sample against the background of both data sources

The authors discuss their findings on exposure to and experience (attitude / barriers) with a CDSS against the background of previous qualitative results and actual literature. I agree with their view of the strengths of the study and the timing of the process evaluation as a possible limitation. However a thorough discussion of the study population itself is missing [Major concern]. As the
sample group of the two approaches is not identical selection bias may have occurred in the self selected questionnaire-sample.

In this context I consider one additional limitation. As the authors mention in the discussion section, (paragraph 8) one strength of the study is its use of multiple methods. Such a triangulation can in fact improve the validity of the results mentioned. But therefore both approaches should be related to each other: In the result section (Paragraph 5 “NHGDoc server”) the authors cite the proportion of practices that used personalized functions of NHGDoc. According to this aspect other variables should be available, e.g. estimated frequency of use of basic function. I suggest “completing the picture” by reporting and discussing the log-data related to self reported variables mentioned in table 2.

Minor Essential Revisions

4. Table 3: In the method section on data collection (Paragraph 7 “perceived barriers”) 6 knowledge-related barriers are mentioned. However in Table 3 only five are displayed while the table is otherwise complete. So this might cause confusion - Which item was left out and why?

5. Figure 1: As I understand, figure 1 shows the number of requests (absolute number) per week. Contradictory, the text on the y-axis states numbers of request per week. Which approach is correct?

6. Figure 1: In addition some explaining text (eg. Q=quartal; X-Axis: Time) could be added for a better understanding.

7. Figure 1: The reported number of requests per week (about 300) seems relatively low keeping in mind that 537 GPs and 225 PN use the program within their consultation of 9 (10 respectively) common concerns. According to the text I assumed that an automatic request is sent each time data of patients with one of the complaints is entered into the electronic health record system. Maybe I misunderstood this part - Please clarify!

8. Figure 2: The headline of the figure states “Figure 1” while it seems to be Figure 2 according to the text.

9. Figure 2: In the method-section on data collection (Paragraph 6 “Experience”) seven statements were mentioned to assess the general attitude towards CDSS. However in figure 1 eight statements are included while I would only name the first 4 and number 6 “statements of general attitude” while the other three statements seem to refer rather to perceived barriers. Please clarify!

Discretionary Revision

10. The authors conducted their study on a sample of 231 practices (of 1100 Practices in the NL in total). However I could not fully understand how the “comprehensive recruitment plan” was actually carried out. Additionally a study-flow chart would be helpful e.g. as an appendix with supplementary material.

11. The potential of log-data can be used more extensive. Depending on the kind of log-data information on time spend by reading alerts or actually working with the program could be investigated. It would also be interesting, which alerts have
been read by GPs or NP respectively (e.g. alerts on data registration and drug prescription respectively). A nice example of broad use of log data might be the paper by Hirsch et al. (2012)5.

12. As the CDSS had the possibility to directly provide feedback to NHGDoc (the organization that has done the development) further information about these comments would be interesting—Although this option was rarely used as reported by the authors. This feedback could be appraised with content analysis and reveal valuable suggestions to address implementation and intervention failure from a broader range of users. Maybe no new aspects compared to the earlier qualitative analysis were found here. However, the authors could mention and discuss this third data source.

Literature


4) O’Cathain, Alicia; Murphy, Elizabeth; Nicholl, Jon (2010): Three techniques for integrating data in mixed methods studies. In: BMJ 341, S. c4587. DOI: 10.1136/bmj.c4587.


Level of interest: An article of importance in its field

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.