Author's response to reviews

Title: General practitioner practices in requesting laboratory tests for patients with gastroenteritis in the Netherlands, 2001-2002

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Author's response to reviews: see over
Reviewer 1.

What would be welcomed is something like a hypothesis about what adherence to guidelines would mean. Now, the conclusion is that GPs do not adhere to diagnostic recommendations as tests are ordered in one in 8 cases. Are these too many? Is the glass half full or half empty? Although the test patterns are considerably lower than those outside the Netherlands, they are still considered as reflecting poor adherence to guidelines?

In the introduction the main research question of the presented study is now addressed which primarily was not focusing on the adherence to the guidelines, but on assessing the (selective) proportion of GP patients with gastroenteritis that is included in laboratory surveillance data (higher layer in the so called surveillance pyramid), which is based on routine laboratory requests. However, as we also considered it important to provide handles to improve daily practice of gastroenteritis cases by GPs, we also used the results for this purpose of assessing adherence. Although for the primary purpose the figure of 1 in 8 is very important in order to know what multiplication factors have to be used if we analyze lab data, for the adherence purpose this figure in itself is not of interest and can not be valued. But the selection criteria used by GP’s that result in this selection of one in 8 definitely are. Guidelines try to limit laboratory tests to patients that benefit from knowing the etiology for therapeutic purposes and try to limit tests to the pathogens that are most likely to be present (at least more likely to be present in the subgroup of patients recommended to be tested compared to the likelihood if testing a random sample of patients). In the Netherlands, we have a general restrictive policy with regard to requesting tests, using medicines and referrals to specialists etc. Besides good practice these guidelines help, among others, to reduce costs and burden for health care and patients.

The comparison with the national guidelines is quite crucial. I suggest the authors include the comparison briefly in the methods section (which, if any, criteria or parameters are used?), together with specific information about the contents of the guidelines.

We have included the comparison with the guidelines in the background, and specified the contents in the methods-section.

Direct comparison with quality indicators would give more specific insight. Some recommendations in the guidelines are very specific and can be used as such, while others are unspecific and rather vague.

See our revisions and remarks at the previous two points of the reviewer.

How is the study cohort selected? The GPs involved work in average practices, but what about their professional skills and views? Could this influence external validity of the results? This should be addressed.

The study cohort is selected on the need for the cohort to be representative for the Netherlands with regard to age, sex, geographical distribution and urbanisation degree. The network of sentinel practices exists already since 1970. If a new GP must be added because a practice drops out (not often) several similar practices are contacted to fill the gap. Of course, the final choice of GP depends on the willingness and motivation of that GP. We do not expect any influence of professional skills and views on the study. A remark has been made in the methods and discussion-section.
In my view, the conclusion that the national guideline needs to be improved is not relevant within the scope of this paper. The paper addresses test use and adherence to the guideline, not the contents of the guideline. Moreover, this conclusion on the quality of the guidelines is not supported by evidence, neither evidence from the present study nor evidence from literature.

We added the comparison with the previous study on the etiology of gastroenteritis in GP more clearly in the new manuscript (in background and discussion). This study raised some new insights (such as the high number of viral infections) that affect the content of the guidelines, that were implemented in 1996, prior to these studies. As additionally the contents of the guidelines are now addressed, we feel that the conclusion can remain the same.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

From literature, test patterns from other countries suggest more requests in the UK and the US. Is there some evidence that these situations are comparable or not? A misunderstanding may be present on page 10. The difference in test patterns between the US and the Netherlands addressed on page 10 is not necessarily explained by the type of physician. Especially in the American cities primary care is usually provided by general internists and pediatricians. Their work in primary care is often comparable with that of Dutch GPs and to some extent they even act as gatekeeper for secondary care.

We have changed this part slightly, and stated that the type of physician might be one of the reasons for the difference.

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Discretionary Revisions (which the author can choose to ignore)

In the paper test requests for viruses are not considered non-rational, whereas the guidelines gives a general recommendation that testing is only indicated in very specific cases and the relevance of test results in the absence of diagnostic consequences is questioned in the guideline. This seems different in the paper. Is there evidence from primary care supporting the relevance of testing for viruses?

Yes, there is. This has now been made more clearly in the discussion-section.

A considerable amount of tests is not in line with recommendations. Can the authors provide information about the role of pressure by the patient? In my own experience, requests by patients are common.

We know that indeed pressure of the patient can play a role, as supported by the fact that one of the reasons for testing indicated by the GPs was for instance reassurance of the parents. We addressed this issue more explicit in the methods and the discussion now.
Reviewer 2

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. In the results section, sometimes the number of patients is mentioned, sometimes only the proportion of them. It would be better to give the numbers systemically for all variables, not only the proportions, e.g: page 5, 3rd paragraph 8. line: “(90% versus 63% for patients…)”, and there are more on pages 6, 7 and 8.
More of the numbers and proportions are now removed from the text and placed in a new table, on request of the other reviewers. The remaining results are adjusted according to the suggestion of the reviewer.

2. Page 5, line 5. The authors write that “Most laboratory tests…” while meaning that lab tests were most often requested in the summer months. I would understand “most laboratory tests” as more that 50% of the tests. As we agree that the formulation is misleading, we changed it to ‘Laboratory tests were more often requested in the summer months’.

3. Page 9, line 5. According to Table 3, there were 17 patients with a parasite, here in the brackets the number is 18. 17 is the correct number. This sentence has been changed.

4. Table 1. 3rd column title is incomplete: that proportions are given in brackets is missing. This has been changed according to the suggestion of the reviewer.

5. Figure 1. In the title of the graph, the authors write “percentage of laboratory tests”. However, in the figure itself, the y-axis is labelled “number of laboratory tests”. Please, clarify. This should have been ‘number’ and has been changed accordingly.

Discretionary Revisions (which the author can choose to ignore)

1. Page 3, paragraph 1. Much of the information in the 3rd and the last sentence is essentially the same. The 3rd sentence has been changed.

2. The reader might be interested in where the stool specimens are investigated, and where they are located in comparison to the GP practices. Does e.g. transporting of the samples require lot of time, which might affect the efficiency of lab tests - and this study. As these details were not collected in the study, we could not follow this suggestion. Since distances in the Netherlands are relatively short, most patients deliver their feces directly to the laboratory. If the stools should be sent by mail, it will be delivered to the laboratory the following day, so we believe it will not have effect on the results.

3. Page 4. line 3. “The network consists of approximately 46 practices…” The expression is a bit vague, is it possible to tell the exact number of practices, and if not, why?
The number of practices varies every year (45 in 2001, 44 in 2002), it has been changed to ‘on average’ 45 practices.

4. In several places in results, pages 5 to 8, where statistical tests have been done, “relatively” should be replaced by “significantly”. In some other places “relatively” is probably not needed; e.g. page 7, line 5: “more often” instead of “relatively more often”. This has been changed when suitable.

5. Page 7, Test results. It would be helpful for the reader, if the number and proportion of positive test results would be given in the first sentence. This has been adjusted accordingly.

6. Page 8, line 7. Is p=0.06 significant? This sentence has been changed in the new manuscript.

7. Page 13 line 16. The authors suggest that the 5 work related specimens were rather little, but leave the reader alone to estimate how many there should be? This part has been omitted in the new discussion.

8. 26% of the questionnaires were not returned. Were these persons who were not included in the analysis similar to those included in the study, or could there have been a selection bias? We had no complete information on these persons (no information on sex), but the 243 patients included were representative for the 350 patients with their stools tested for degree of urbanisation, region in the Netherlands and 4-week period. Relatively few questionnaires were received for newborns. We have included this information in the results.

9. The whole article is rather long, the authors might think about shortening especially the results section, which sometimes gives very detailed results. In the new manuscript more results are given in a new table, and parts of the results have been omitted.

Reviewer 3.

The paper is less good at drawing out the significance of the work. The background could say more about why the study is needed and of importance, and say something about what the authors hoped to discover. Explicit hypotheses might be considered.

In the introduction the main research question of the presented study is now addressed which primarily was not focusing on the adherence to the guidelines, but on assessing the (selective) proportion of GP patients with gastroenteritis that is included in laboratory surveillance data (higher layer in the so called surveillance pyramid), which is based on routine laboratory requests. However, as we also considered it important to provide handles to improve daily practice of gastroenteritis cases by GPs, we also used the results for this purpose of assessing adherence. Although for the primary purpose the figure of 1 in 8 is very important in order to know what multiplication factors have to be used if we analyze lab data, for the adherence purpose this figure in itself is not of interest and can not be valued. But the selection criteria used by GP’s that result in this selection of one in 8 definitely are.
Guidelines try to limit laboratory tests to patients that benefit from knowing the etiology for therapeutic purposes and try to limit tests to the pathogens that are most likely to be present (at least more likely to be present in the subgroup of patients recommended to be tested compared to the likelihood if testing a random sample of patients). In the Netherlands, we have a general restrictive policy with regard to requesting tests, using medicines and referrals to specialists etc. Besides good practice these guidelines help, among others, to reduce costs and burden for health care and patients.

In the results section, a lot of information is included in the text. It would be easier for the reader to appreciate the important messages if less detail were in the text, with more data and significance tests being shown in the tables. In the new manuscript, a table has been added. Therefore information could be omitted from the text.

Some thought could be given to use of regression techniques rather than just descriptive statistics, for example in investigating the reasons for ordering tests (page 7/8). As we could not see an added value for a regression analyses we decided not to do so.

The discussion is rather long and does not draw out the key findings very clearly. Sub-headings might help, and a more focused background plus tighter results section would enable the discussion to be made clearer. We have tried to alter the background so it is more clear what the focus of the article is. The discussion is now divided into 3 sections with sub-headings. Hereby, we hope it is more clearly and more in line with the focus. The results have been more tighter because of the new table.

The implications of the findings for the content of the revised guidelines could be made more explicit, perhaps in a box.

The need for a revision are now put clearly in the discussion with a sub-heading.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

The background, results and discussion section need some re-drafting to clarify and bring out the important issues. This should not be a difficult or prolonged task, and requires no new analyses.

See comments above.

Reference to a difference that was not statistically significant (newborns and cryptosporidium) should be re-considered. We have made the results-section tighter, and have omitted most references to not significant differences. However, this particular difference has stayed in the article to compare with the guidelines (request tests for protozoa for children).