PEER REVIEW HISTORY

This paper was submitted to the BMJQS but declined for publication following peer review. The authors addressed the reviewers' comments and submitted the revised paper to BMJ Open. The paper was subsequently accepted for publication at BMJ Open.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Utility of a Pediatric Trigger Tool in a Norwegian Department of Pediatric and Adolescent Medicine
AUTHORS	Solevåg, Anne Lee; Nakstad, Britt

VERSION 1 - REVIEW

REVIEWER	Walsh, Kathleen Cincinnati Children's Hospital, Pediatrics
REVIEW RETURNED	25-Oct-2013

GENERAL COMMENTS	This is an interesting article applying the NHS pediatric trigger tool in a Norwegian hospital. This publication would be interest to those seeking to apply the NHS tool to their population. I have 2 major concerns: (1) the writing needs some work and (2) the results for an ambulatory and inpatient group should be presented separately. The tool was developed for inpatients and so may not be well suited for ambulatory patients. As such, it would be important to separate ambulatory and inpatient populations throughout the paper rather than pooling. Specific comments are below: Abstract: clearly written. The first sentence in the methods section describing the 761… should be the first sentence in the results. The methods should include sampling methods- were all patients in the time period included? The results should be all one paragraph. The result of zero ppv for hypoxia is interesting. Also, the fact that the types of harm differed from incident reports seems valuable. The use of commas in the place of decimals is a bit confusing. Introduction is well written. Results: the context section is a bit long. Would combine the first and second paragraphs together. The number of children in the catchment area should be removed. The verb tense in the second sentence would be more clearly written as- "children are examined" rather than "are being". Also, the sentence is unclear. Would change to "children referred by general physicians for acute specialist care are examined in the children's ED and about 50% are admitted." The information about the remaining 50% is not necessary. The first sentence of the next paragraph should be shortened to start at "AHUS does not have a PICU but transfers children below the age of 3 years to a nearby university hospital." This methods page has 6 abbreviations. Would use not more than 2-3 abbreviations in the entire article. In the section PTT screening, the first sentence should be in the

	results section. The first sentence, instead, should describe your sampling method. For example, “we reviewed all patient visits to the emergency department over a 3 month period.” Also, it appears that you reviewed 95% of the visits. Please add a sentence in the results that explains why you did not review the other 5%. Table 1. The comments column is a bit unusual and would probably be more clear is removed and placed in the methods section. Recommend adding 95% confidence intervals around each PPV listed. On the top of page 8, would add an explanation about why the hypokalemia and hyponatremia triggers were changed. The MERP states are visually choppy- would set apart as a table or include in the paragraph as a list. On page 8, under voluntary incident reporting, ALS read all pediatric (medical) patients reports is a little confusing- did ALS review voluntary incident reports for all study subjects or just some of them? Would clarify. The methods would be improved by specifying which parts of the record were reviewed using the PTT. Would clarify whether the PTT was a paper based or electronic trigger tool. Justification for the sample size would also be helpful to add- was it a convenience sample over 3 months or was there a sample size calculation that drove the 3 month study period? The first paragraph in the results is typically called demographics. Figure 1 is more traditionally displayed as a table and may be clearer this way. It is still unclear to me if all these patients represent all visits during that time period, or if there were some that were excluded from study. In the third paragraph, the statement “52% of outpatient visits were a re-admission” is unclear. Outpatient care is, by definition, often continuous with multiple visits. The outpatient readmission concept is unclear. Please explain. Table 2- would suggest adding confidence intervals around each PPV Under both triggers and harm, would present all results separated into ambulatory and inpatient. The examples of harm would be better presented as a table with the percents for each. Under inter-rater agreement, where it states the agreement was “high” replace the word “high” with a number. The information comparing GTT to the hospital should be moved to the conclusions as there is no new results in that section. The first sentence under the incidence reports section- should add numbers rather than “the majority”. The statement “patient harm as defined by...” would be clearer if the definition was included. In the last paragraph in the methods, where you list the different types of patient harm, it would be helpful to include numbers for each item in the list. Discussion: The first paragraph is clear and well written. The information about the Canadian study is long and could be shortened. It is possible that the reason your hospital saw lower numbers than some others is because ½ the visits were ambulatory and the trigger tool was not designed for that setting. As such, there may be other types of harm occurring in the outpatient setting that were not included in the PTT. It would be more accurate to compare your harm rates from the inpatient setting only to these other inpatient studies. On page 16, the top paragraph, is there a medical explanation you could add regarding the ppv of zero for thrombocytopenia and

	hypoxemia? Under practical use of the ptt- the numbered parts should be included in a written paragraph rather than as numbered bullets. Under limitations, would add that you applied the tool in ways it was not designed to be used- ambulatory and with the lab levels. The first sentence under limitations- “analyses were mainly performed by one investigator”. I thought from reading the methods that they were all performed by one investigator. If so, remove the work mainly. If not, clarify. In the conclusions, clarify the reference to the Kendall et al article for those who are not familiar with that, or remove it. The 3 figures in the back are more traditionally represented as tables. Would suggest changing to tables. I hope these suggestions will be helpful to you. I found this study interesting and valuable.

- This manuscripts received three reviews at the BMJQS but the other two referees have declined to make their comments public.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

This is an interesting article applying the NHS pediatric trigger tool in a Norwegian hospital. This publication would be interest to those seeking to apply the NHS tool to their population. I have 2 major concerns: (1) the writing needs some work and (2) the results for an ambulatory and inpatient group should be presented separately. The tool was developed for inpatients and so may not be well suited for ambulatory patients. As such, it would be important to separate ambulatory and inpatient populations throughout the paper rather than pooling. Specific comments are below:

Abstract: clearly written. The first sentence in the methods section describing the 761… should be the first sentence in the results.

Comment: The change has been made

The methods should include sampling methods- were all patients in the time period included?

Comment: We have added the sentence: ‘For convenience, we included the visits that were documented for the purpose of evaluating the introduction of a pediatric early warning score in our department over a 3 month period.[7] This equals 95% of all contacts in the children’s ED in the study months.

The results should be all one paragraph.

Comment: The results are now presented in a single paragraph

The result of zero ppv for hypoxia is interesting. Also, the fact that the types of harm differed from incident reports seems valuable. The use of commas in the place of decimals is a bit confusing.

Comment: The decimals have been corrected

Introduction is well written.

Results: the context section is a bit long.

Would combine the first and second paragraphs together.

Comment: The context section has been shortened

The number of children in the catchment area should be removed.

Comment: This information has been removed

The verb tense in the second sentence would be more clearly written as- “children are examined” rather than “are being”. Also, the sentence is unclear. Would change to “children referred by general physicians for acute specialist care are examined in the children’s ED and about 50% are admitted.” The information about the remaining 50% is not necessary.

Comment: These changes has been made

The first sentence of the next paragraph should be shortened to start at “AHUS does not have a PICU but transfers children below the age of 3 years to a nearby university hospital.”

Comment: These changes has been made

This methods page has 6 abbreviations. Would use not more than 2-3 abbreviations in the entire article.

In the section PTT screening, the first sentence should be in the results section. The first sentence, instead, should describe your sampling method. For example, “we reviewed all patient visits to the emergency department over a 3 month period.” Also, it appears that you reviewed 95% of the visits. Please add a sentence in the results that explains why you did not review the other 5%.

Comment: These changes has been made

Table 1. The comments column is a bit unusual and would probably be more clear is removed and placed in the methods section. Recommend adding 95% confidence intervals around each PPV listed.

Comment: These changes has been made

On the top of page 8, would add an explanation about why the hypokalemia and hyponatremia triggers were changed.

The MERP states are visually choppy- would set apart as a table or include in the paragraph as a list.

Comment: The MERP categories are now presented as a list

On page 8, under voluntary incident reporting, ALS read all pediatric (medical) patients reports is a little confusing- did ALS review voluntary incident reports for all study subjects or just some of them? Would clarify.

Comment: ALS read all incident reports for the medical patient, but not for the surgical patients. This is stated as: -ALS read and classified patient related incidents regarding pediatric (medical) patients reported in the EQS in March until May 2011

The methods would be improved by specifying which parts of the record were reviewed using the PTT.

Comment: We have now explained in more detail

Would clarify whether the PTT was a paper based or electronic trigger tool.

Comment: We now specify that this was a manual screening

Justification for the sample size would also be helpful to add- was it a convenience sample over 3 months or was there a sample size calculation that drove the 3 month study period?

Comment: We now explain that this was a convenience sample

The first paragraph in the results is typically called demographics.

Comment: We have removed most of the subheadings of the results section

Figure 1 is more traditionally displayed as a table and may be clearer this way. It is still unclear to me if all these patients represent all visits during that time period, or if there were some that were excluded from study.

Comment: This has been clarified

In the third paragraph, the statement “52% of outpatient visits were a re-admission” is unclear.

Outpatient care is, by definition, often continuous with multiple visits. The outpatient readmission concept is unclear. Please explain.

Comment: We talk about *unplanned* readmissions. However, we do realize that the statement is confusing. Also, as these results do not add significantly to our conclusion, we have removed this paragraph from the revised manuscript

Table 2- would suggest adding confidence intervals around each PPV

Comment: A 95% confidence interval has been added to each PPV

Under both triggers and harm, would present all results separated into ambulatory and inpatient.

Comment: We have separated a lot of our results into ambulatory (outpatient) and inpatient (admitted). However, due to a relatively low number of outpatient contacts, not all results could be stratified.

The examples of harm would be better presented as a table with the percents for each.

Comment: The number of each type of harm was low and listing each type of harm with percents would likely appear strange

Under inter-rater agreement, where it states the agreement was “high” replace the word “high” with a number.

Comment: The section about inter-rater agreement has been removed from the manuscript as we realize that the charts that were assessed by two investigators were to few in number for any conclusion to be drawn

The information comparing GTT to the hospital should be moved to the conclusions as there is no new results in that section.

Comment: The results from adult GTT screening have been removed from the manuscript as we found them not highlight our findings

The first sentence under the incidence reports section- should add numbers rather than “the majority”. The statement “patient harm as defined by...” would be clearer if the definition was included.

Comment: We have changes the sentence to: -About two thirds of the incidents reported were minor incidents like delay in medication administration not leading to patient harm.

In the last paragraph in the methods, where you list the different types of patient harm, it would be helpful to include numbers for each item in the list.

Comment: Comment: We are uncertain what the reviewer means by this

Discussion:

The first paragraph is clear and well written. The information about the Canadian study is long and could be shortened.

Comment: The information about the Canadian study has been shortened

It is possible that the reason your hospital saw lower numbers than some others is because ½ the visits were ambulatory and the trigger tool was not designed for that setting. As such, there may be other types of harm occurring in the outpatient setting that were not included in the PTT. It would be more accurate to compare your harm rates from the inpatient setting only to these other inpatient studies.

Comment: We have added a paragraph to the methods section where we explain that: -The PTT user guide dictates a minimum length of stay of 8 hours.[4] However, as we argue that our threshold for admitting patients from the children's ED is high with often only slight differences in disease severity and complexity between those who are admitted and those who are not, we included also acute outpatient visits in our screening.

On page 16, the top paragraph, is there a medical explanation you could add regarding the ppv of zero for thrombocytopenia and hypoxemia?

Comment: We have added a sentence to the discussion: -Hypoxia, electrolyte abnormalities and thrombocytopenia had a PPV of zero and may not be worthwhile screening for in our patient population. However, bearing in mind the short study period of 3 months, further studies, ideally multicenter studies are needed before abolishment of some triggers.

Under practical use of the ptt- the numbered parts should be included in a written paragraph rather than as numbered bullets.

Comment: This change has been made

Under limitations, would add that you applied the tool in ways it was not designed to be used- ambulatory and with the lab levels.

Comments: We have now discussed these two factors in the limitations section

The first sentence under limitations- "analyses were mainly performed by one investigator". I thought from reading the methods that they were all performed by one investigator. If so, remove the work mainly. If not, clarify.

Comment: The word ‘mainly’ has been removed

In the conclusions, clarify the reference to the Kendall et al article for those who are not familiar with that, or remove it.

Comment: We have removed the reference to Kendall in the conclusion

The 3 figures in the back are more traditionally represented as tables. Would suggest changing to tables.

Comment: The figures have been replaced by a table

I hope these suggestions will be helpful to you. I found this study interesting and valuable.