OBSTETRICS & GYNECOLOGY

NOTICE: This document contains comments from the reviewers and editors generated during peer review of the initial manuscript submission and sent to the author via email.

Questions about these materials may be directed to the *Obstetrics & Gynecology* editorial office: obgyn@greenjournal.org.

Date: Jul 15, 2019
To: "Tetsuya Kawakita" [redacted]
From: "The Green Journal" em@greenjournal.org
Subject: Your Submission ONG-19-1065

RE: Manuscript Number ONG-19-1065

Evaluation of Risk Assessment Tools for Severe Postpartum Hemorrhage in Women Undergoing Cesarean Deliveries

Dear Dr. Kawakita:

Your manuscript has been reviewed by the Editorial Board and by special expert referees. Although it is judged not acceptable for publication in Obstetrics & Gynecology in its present form, we would be willing to give further consideration to a revised version.

If you wish to consider revising your manuscript, you will first need to study carefully the enclosed reports submitted by the referees and editors. Each point raised requires a response, by either revising your manuscript or making a clear and convincing argument as to why no revision is needed. To facilitate our review, we prefer that the cover letter include the comments made by the reviewers and the editor followed by your response. The revised manuscript should indicate the position of all changes made. We suggest that you use the "track changes" feature in your word processing software to do so (rather than strikethrough or underline formatting).

Your paper will be maintained in active status for 21 days from the date of this letter. If we have not heard from you by Aug 05, 2019, we will assume you wish to withdraw the manuscript from further consideration.

REVIEWER COMMENTS:

Reviewer #1: In this retrospective cohort study, the authors evaluated three risk assessment tools (CMQCC, AWHONN, and NYSBOH) for severe postpartum hemorrhage among women undergoing cesarean delivery. The article is innovative, PPH is a hot topic in obstetrics, the article is overall well written, the figures are illustrative, methods are well described, and the conclusions reflect the reported results. The following issues needs to be addressed.

1. Abstract, line 57: the authors describe that prolonged second stage is a risk factor for AWHONN and NYSBOH; however, it is only check for AWHONN in Box 1. This discrepancy needs to be corrected.

2. Abstract, conclusions: it is important to specify in the conclusions that the study was performed exclusively in women undergoing cesarean delivery. This also applies for the precis.

3. Introduction, line 80: add a reference to the statement: "it is well accepted that cesarean delivery poses an increased risk for PPH"

4. Methods, line 104: what is the basis to define a large fibroid as at least 10 cm? Is the measurement cut off for one, two, or three diameters? In which trimester the measurements were obtained? Distinguish cases with a solitary versus multiple fibroids.

5. Methods, lines 117-119 The authors did not include patient's hematocrit as a risk factor for severe postpartum hemorrhage arguing that low hematocrit is a risk factor for blood transfusion, but not for PPH. Although this is true statement, the authors define severe PPH as the transfusion of at least 4 units of PRBCs, compare rates of any transfusion between the stratified groups (Table 4) and create ROCs of the three risk assessment tools for any blood transfusion (Figure S1). This cohort is composed of women undergoing cesarean delivery which is a procedure that implies higher blood loss compared with vaginal delivery. Patient's low hematocrit is definitely a risk factor for any blood transfusion for this cohort, needs to be reported, and should be considered as a potential confounder in the multivariable analyses.

6. It is surprising that information of thrombocytopenia and polyhydramnios was not available given that CBC is routinely obtained in women undergoing cesarean delivery and polyhydramnios is a straightforward diagnosis made by ultrasound.

7. Clarify the methodology used to stratify women into low-risk, medium-risk, and high-risk groups. For instance, cases with more than one medium risk factor were stratified in the medium-risk or in the high-risk group?

8. Methods, line 129: what outcomes the authors are referred to? Please specify.

9. Results, line 143: specify the missing variables that met the exclusion criteria for the 90 cases.

10. Report the number of primary and repeat cesarean deliveries. Also, report the number of cesarean hysterectomies, an important risk factor for severe PPH.

11. The authors found the gestational age at delivery is associated with severe PPH. Is the type of uterine incision (i.e. classical vs low transverse) associated with severe PPH?

12. Results, lines 157-163: There are multiple errors on the assignment of the risk assessment tools to the risk factors described in this paragraph. For example, magnesium sulfate is only a risk factor checked in the AWHONN column in Box 1, but not in NYSBOH as described in the text. These discrepancies need to be corrected.

13. A multivariable analysis of risk factors for severe PPH not included in the three risk assessment tools such as maternal age and gestational age at delivery needs to be performed.

14. Describe the standard measures taking to prevent and manage postpartum hemorrhage (i.e. uterotonic medications, tranexamic acid, uterine massage) in women undergoing cesarean delivery at your institution.

15. National organizations such as ACOG and RCOG define postpartum hemorrhage based on amount of blood loss. Although, the authors opted to define severe PPH in a different way, it is important to report data of blood loss and to specify if blood loss was calculated quantitively or qualitatively?

16. The marked differences of sensitivities, specificities, and crude ORs for severe PPH between the stratified groups in each of the risk assessment tools need to be discussed. Based on the study findings, can the authors make a recommendation of which of the assessed risk assessment tools is better to use in clinical practice?

Reviewer #2: The authors present their work evaluating tools for assessment of risk of severe postpartum hemorrhage in women undergoing cesarean. The following items should be addressed:

1. Line 82-83 - the authors decided to define severe PPH as requiring transfusion of 4 units of RBC's and the rationale for this is given later, in lines 98-100, but for the reader it would be best if that explanation was included the first time the definition is introduced.

2. Line 117-119 - the authors provide their rationale for not including hematocrit as a variable, but certainly the lower the starting hematocrit the more likely a blood transfusion will be required, and therefore this is a confounding variable for the study definition of severe PPH. Please discuss further or consider revising this decision.

3. Line 151 - how was emergency cesarean delivery defined?

4. The authors determined whether or not a patient was in labor and whether or not there was a previous scar; please comment on the performance of the risk assessment tool in patients with failed TOLAC, as these are known to have higher risk of PPH.

5. How did the authors decide to define "large fibroid" as >10cm?

Reviewer #3: This is an interesting and important area of study. The authors are validating 3 current clinical tools for assessing patients at risk for PPH. In general, the paper is well written but there are areas of confusion .

Abstract

One of the considerable strengths of this paper is that they did a chart review versus use of codes. This fact should be placed in the abstract .

The abstract lists what was not considered a risk factor, and what they found in addition that were risk factors, but they do not list the risk factors from the tools that were found to be correlated with PPH. This is important information to the reading audience and should be in the abstract.

The abstract needs to clarify that this paper looked at the risk factors included in each tool AND also that the paper compared the tools to each other.

If more space is needed in the abstract, consider removing the information about the AUC as that belongs more in results and discussion

Conclusion line can be lengthened

Intro:
The discussion about how Dilla examined the CMQCC defining PPH as only 1 unit of blood for a transfusion but the authors chose to using 4 needs more explanation here.

Methods

Clarify that you are examining these tools both separately and together

Lines 100 -107 It appears that all of the factors for scoring are taken from all the tools. Please clarify with a sentence that these factors where present in either one or all the tools.

Line 118-119 if your definition for PPH was transfusion and a low hct leads to transfusion why was it not included in the multifactorial regression? Was this because preop hct was not available for most cases? This decision not to include baseline hematocrit in any analysis needs to be explained

Results
Line 160 states prolong second etc. was not associated but induction was clearly not with a p value of <.0001 but is it in the same category as the others with non significant p values?Shouldn't these factors be reported separately?

Line 170-173 can you list the tool that is correlate with the %?

Tables

Table 1
For GA would like to see the p value for each age is only 32-36 significant?

Under the section "not included in the risk assessment tool"-Was labor only spontaneous (since augment and induced is listed above) or does this include all forms of labor spontaneous and induced ?

Can you comment about what appears to be an actual protector of labor for hemorrhage?

Can you add anemia in the multivariable logistic regression?

Table 3 what is the p value reflecting?

Discussion

Line 195-196 Can you explain the significance of a moderate AUC - how should the clinical OB use that information ?

Line 230 - very significant, should this be used in the abstract under conclusions?

In limitation -
Line 237 did you not have the preop hematocrit or the series of hematocrit ? What exactly was the limitation?

Reviewer #4: The subject of the article, evaluating three risk assessment tools for severe PPH in women undergoing cesarean sections, is definitely of interest to the readers of this Journal.

The design study:
You evaluated close to seven thousand women who underwent cesarean section in an urban hospital over a five year period. Although you stated that the fact that most of the women were Non-Hispanic Black is a limitation of the study, I do not believe that the results would have been largely different if a more diverse population had been involved.

You defined Severe PPH based on the need to transfuse at least 4 units of PRBC. Not basing the definition on the volume of lost blood allowed you to avoid the inherent subjectivity of blood loss assessment.

On the other hand, different OB/GYN and Anesthesia departments have different approaches when it comes to blood transfusion- some are more liberal than others and some apply massive transfusion protocols - so in that sense using the 4 unit PRBC definition in one hospital setting is a limitation of the study in another hospital the incidence of Severe PPH

(where 4 units are transfused) could have been different.

You have limited your assessment to cesarean sections only. I think that you should have also analysed vaginal deliveries. Some deliveries that end up as C/sections started with labor, in anticipation of vaginal delivery, and as we are assessing three tools for the anticipation of PPH it would be better if we could see the three prediction tools applied to both delivery routes.

The evaluated risk factors:

Several risk factors were not evaluated:

Hematocrit: You state (lines 117-119) that you intentionally did not include the hematocrit in the evaluation because a low hematocrit is a predictor to blood transfusion but not to PPH. However, when your definition of Severe PPH is based wholly on the number of units transfused this claim is clearly not true.

Personal History of Hemorrhage, thrombocytopenia, coagulopathy, polyhydramnis: You claim (lines 235-237) that you do not have this information. It is hard to believe that this data is not in the medical record. This is especially true with an urban hospital where the prenatal care is handled many times by the hospital's clinic.

The missing analysis of these risk factors is crucial for assessing the effect of the other risk factors on the validity of the assessment tools. The small number of the patients who develops severe PPH (77 out of the patients who had cesarean section) allows obtaining the missing data even manually or with personal questionnaires and this can be compared against an adequate sample of patient who did not develop severe PPH.

Discussion: As most physicians are not familiar with all three risk assessment tools, I think that a brief review of each system and how it calculates the risk, possibly in a separate table can be helpful.

In summary:
I recommend that all the risk factors will be assessed.

You consider expanding the analysis to vaginal deliveries.

Review the three tools for the readers.

STATISTICAL EDITOR COMMENTS:

The Statistical Editor makes the following points that need to be addressed:

lines 128-130 and Table 1: Some of the variables had counts in the severe hemorrhage cohort of < 5 and Fisher's test should have been used, not Chi-square, which changes the p-values. Need units for maternal age, GA. Were the maternal age and GA normally distributed in the severe hemorrhage cohort? If not, should format as median(IQR or range) and test non-parametrically.

Table 2: Should state that the outcome in these models is severe hemorrhage. Should include crude as well as aORs. Should state the number of variables included in the adjustment model, keeping in mind that the number of adverse outcomes (n = 77) would limit the number of adjustors permitted to a maximum = 7 or 8, using the rule of a minimum of 10 adverse outcomes per variable. If more than 10 adjustors were used, then the aOR is potentially overfitted. Another strategy would be to use matching of the severe hemorrhage cohort to a matched set from the large database of non-hemorrhage. Given the low counts of adverse outcomes, there is no basis for citing aORs to 4 significant figures, 3 is more than sufficient.

Tables 3,4: Should include CIs for the sensitivity and specificity estimates. Given the low counts of adverse outcomes, there is no basis for citing aORs to 4 significant figures, 3 is more than sufficient. The rates of severe PPH are statistically indistinguishable for the low vs moderate risk, so that should be made clearer for the reader, lest they misinterpret the Table as showing a statistically difference between those strata. Also, the reason for no difference could be related to low power, given how infrequent severer PPH is for those strata. Also, to put the ORs in context, should also provide the NNT with CIs, since the absolute risks, although statistically significant, remain small.

General for Tables 3, 4: The rates of severe PPH seem incompatible with high rates of sensitivity shown in the Tables, esp Table 3. Should explain how those were estimated.

General: Seems odd to have omitted any pre-delivery metric of anemia or Hct, since the definition of severe PPH was transfusion of ≥ 4 units which might have been related to pre-delivery hct.

EDITOR COMMENTS:

1. Thank you for your submission to Obstetrics & Gynecology. In addition to the comments from the reviewers above, you are being sent a notated PDF that contains the Editor's specific comments. Please review and consider the comments in this file prior to submitting your revised manuscript. These comments should be included in your point-by-point response cover letter.

The notated PDF is uploaded to this submission's record in Editorial Manager. If you cannot locate the file, contact Randi Zung and she will send it by email - rzung@greenjournal.org.

- When you write that a study occurred between date 1 and date 2, it literally excludes those boundary dates. For instance, "This study was performed between Feb 2018 and Jan 2019" would mean it was performed from March 2018 to Dec 2018. Do you instead mean that the study was performed from date 1 to date 2? If so, please edit.

- was this time limited as well (ie, during the post partum period only?)

- The abstract has to stand alone. I've not read the full text yet, and i'm ucertain about what you mean by lines 55-63. Are you saying that these individual factors (macrosomia, prolonged 2nd stage, IOL, BMI) did not have an association with severe PPH and the parenthetics you are giving are the name of the tool OR are these metrics defined differently in the different tools and the factors were not useful in the tools named in the parenthesis but may have been in the others? Another way of asking this is : Were IOL and prolonged second stage NOT included in the California tool?

- Not sure this conclusion matches your data very well. The tools missed 28-36% of patients

- Given that you have provided the tools in Box 1, its not necessary to list all of these factors here. You can just reference the box.

- please elaborate here. A woman could have "active bleeding" from a previa, transection of the uterine artery, atony, etc.....why limit active bleeding to only abruption patients?

- This seems to run counter to your definition provide on line 97-98 in which you defined PPH by the receipt of 4 units of red cells, not but some quantity of blood loss. By this definition, a woman's preop hematocrit IS a risk factor for what you defined as the outcome.

- How as this stratification done? What qualified as low risk in AWHONN for instance? How did you do the analysis for factors you considered which were not in any of the tools?

- This gets back to my uncertainty about the abstract. Could you write this a bit differently to increase clarity abit? Perhaps something like: Risk factors that were included in all three tools that were associated with severe PPH included..... Factors included in only one or two tools (provided in parenthesis) that were associated with severe PPH include large fibroid, > 4 previous vaginal deliveries, chorioamnionitis (CMQCC and AWHONN);..... Lines 159-163 would not need editing as the reader would know how you are organizing this section.

- I don't see in your methods that you collected data on any transfusion.

- It seem worthwhile to reference the AIM bundle for post partum hemorrhage.

- does it ever NOT require surgical planning?

- This is known as a primacy claim: yours is the first, biggest, best study of its kind. In order to make such a claim, please provide the databases you have searched (PubMED, Google Scholar, EMBASE for example), the years searched, and the search terms used. If not done, please edit it out of the paper.

- Please temper this. They worked only moderately well so I'm not sure I would say they were accurate. Also, please consider highlighting in your article the rate at which the tools FAILED to predict a severe PPH with a reminder that clinicians should not be lulled into thinking that such an event won't happen in low risk women. Also, perhaps add something actionable--for patients who screen at high risk by whichever tool, should the clinician consider a type and cross preop rather than a type and screen?

2. The Editors of Obstetrics & Gynecology are seeking to increase transparency around its peer-review process, in line with efforts to do so in international biomedical peer review publishing. If your article is accepted, we will be posting this revision letter as supplemental digital content to the published article online. Additionally, unless you choose to opt out, we will also be including your point-by-point response to the revision letter. If you opt out of including your response, only the revision letter will be posted. Please reply to this letter with one of two responses:

A. OPT-IN: Yes, please publish my point-by-point response letter.
B. OPT-OUT: No, please do not publish my point-by-point response letter.

3. As of December 17, 2018, Obstetrics & Gynecology has implemented an "electronic Copyright Transfer Agreement" (eCTA) and will no longer be collecting author agreement forms. When you are ready to revise your manuscript, you will be prompted in Editorial Manager (EM) to click on "Revise Submission." Doing so will launch the resubmission process, and you will be walked through the various questions that comprise the eCTA. Each of your coauthors will receive an email from the system requesting that they review and electronically sign the eCTA.

Any author agreement forms previously submitted will be superseded by the eCTA. During the resubmission process, you are welcome to remove these PDFs from EM. However, if you prefer, we can remove them for you after submission.

4. Our journal requires that all evidence-based research submissions be accompanied by a transparency declaration statement from the manuscript's lead author. The statement is as follows: "The lead author* affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained." *The manuscript's guarantor.

If you are the lead author, please include this statement in your cover letter. If the lead author is a different person, please ask him/her to submit the signed transparency declaration to you. This document may be uploaded with your submission in Editorial Manager.

5. Standard obstetric and gynecology data definitions have been developed through the reVITALize initiative, which was convened by the American College of Obstetricians and Gynecologists and the members of the Women's Health Registry Alliance. Obstetrics & Gynecology has adopted the use of the reVITALize definitions. Please access the obstetric and gynecology data definitions at https://www.acog.org/About-ACOG/ACOG-Departments/Patient-Safety-and-Quality-Improvement/reVITALize. If use of the reVITALize definitions is problematic, please discuss this in your point-by-point response to this letter.

6. Because of space limitations, it is important that your revised manuscript adhere to the following length restrictions by manuscript type: Original Research reports should not exceed 22 typed, double-spaced pages (5,500 words). Stated page limits include all numbered pages in a manuscript (i.e., title page, précis, abstract, text, tables, boxes, figure legends, and print appendixes) but exclude references.

7. Specific rules govern the use of acknowledgments in the journal. Please note the following guidelines:

* All financial support of the study must be acknowledged.
* Any and all manuscript preparation assistance, including but not limited to topic development, data collection, analysis, writing, or editorial assistance, must be disclosed in the acknowledgments. Such acknowledgments must identify the entities that provided and paid for this assistance, whether directly or indirectly.
* All persons who contributed to the work reported in the manuscript, but not sufficiently to be authors, must be acknowledged. Written permission must be obtained from all individuals named in the acknowledgments, as readers may infer their endorsement of the data and conclusions. Please note that your response in the journal's electronic author form verifies that permission has been obtained from all named persons.
* If all or part of the paper was presented at the Annual Clinical and Scientific Meeting of the American College of Obstetricians and Gynecologists or at any other organizational meeting, that presentation should be noted (include the exact dates and location of the meeting).

8. The most common deficiency in revised manuscripts involves the abstract. Be sure there are no inconsistencies between the Abstract and the manuscript, and that the Abstract has a clear conclusion statement based on the results found in the paper. Make sure that the abstract does not contain information that does not appear in the body text. If you submit a revision, please check the abstract carefully.

In addition, the abstract length should follow journal guidelines. The word limits for different article types are as follows: Original Research articles, 300 words. Please provide a word count.

9. Only standard abbreviations and acronyms are allowed. A selected list is available online at http://edmgr.ovid.com/ong/accounts/abbreviations.pdf. Abbreviations and acronyms cannot be used in the title or précis. Abbreviations and acronyms must be spelled out the first time they are used in the abstract and again in the body of the manuscript.

10. The journal does not use the virgule symbol (/) in sentences with words. Please rephrase your text to avoid using "and/or," or similar constructions throughout the text. You may retain this symbol if you are using it to express data or a measurement.

11. Please review the journal's Table Checklist to make sure that your tables conform to journal style. The Table Checklist is available online here: http://edmgr.ovid.com/ong/accounts/table_checklist.pdf.

12. The American College of Obstetricians and Gynecologists' (ACOG) documents are frequently updated. These

documents may be withdrawn and replaced with newer, revised versions. If you cite ACOG documents in your manuscript, be sure the reference you are citing is still current and available. If the reference you are citing has been updated (ie, replaced by a newer version), please ensure that the new version supports whatever statement you are making in your manuscript and then update your reference list accordingly (exceptions could include manuscripts that address items of historical interest). If the reference you are citing has been withdrawn with no clear replacement, please contact the editorial office for assistance (obgyn@greenjournal.org). In most cases, if an ACOG document has been withdrawn, it should not be referenced in your manuscript (exceptions could include manuscripts that address items of historical interest). All ACOG documents (eg, Committee Opinions and Practice Bulletins) may be found via the Clinical Guidance & Publications page at https://www.acog.org/Clinical-Guidance-and-Publications/Search-Clinical-Guidance.

13. Figure 1 may be resubmitted as-is.

14. Authors whose manuscripts have been accepted for publication have the option to pay an article processing charge and publish open access. With this choice, articles are made freely available online immediately upon publication. An information sheet is available at http://links.lww.com/LWW-ES/A48. The cost for publishing an article as open access can be found at http://edmgr.ovid.com/acd/accounts/ifauth.htm.

Please note that if your article is accepted, you will receive an email from the editorial office asking you to choose a publication route (traditional or open access). Please keep an eye out for that future email and be sure to respond to it promptly.

15. If you choose to revise your manuscript, please submit your revision via Editorial Manager for Obstetrics & Gynecology at http://ong.editorialmanager.com. It is essential that your cover letter list point-by-point the changes made in response to each criticism. Also, please save and submit your manuscript in a word processing format such as Microsoft Word.

If you submit a revision, we will assume that it has been developed in consultation with your co-authors and that each author has given approval to the final form of the revision.

Again, your paper will be maintained in active status for 21 days from the date of this letter. If we have not heard from you by Aug 05, 2019, we will assume you wish to withdraw the manuscript from further consideration.

Sincerely,

Nancy C. Chescheir, MD
Editor-in-Chief

2018 IMPACT FACTOR: 4.965
2018 IMPACT FACTOR RANKING: 7th out of 83 ob/gyn journals

Date: Jul 30, 2019
To: "Tetsuya Kawakita" [redacted]
From: "The Green Journal" em@greenjournal.org
Subject: Your Submission ONG-19-1065R1

RE: Manuscript Number ONG-19-1065R1

Evaluation of Risk Assessment Tools for Severe Postpartum Hemorrhage in Women Undergoing Cesarean Deliveries

Dear Dr. Kawakita:

Your revised manuscript has been reviewed. There are some additional comments that we need you to address prior to being further discussed by the Editors. Comments from about your revised manuscript are below. You are also receiving an edited version of your submitted revision that contains the comments below and additional edits for your review.

This file is uploaded as an Attachment in your manuscript's submission record. The file name will be "19-1065R1 ms (7-30-19v2)." Please work on your next version using this file.

Your next version will be due in 14 days from today. If you need additional time, please contact Randi Zung (rzung@greenjournal.org).

REVIEWER COMMENTS:

1. General: The Manuscript Editor and Dr. Chescheir have made edits to the manuscript using track changes. Please review them to make sure they are correct.

2. Thank you for your initial revision of your paper. Please see my comments on the attached document. The issue of not having hematocrit levels is still a major problem. This was pointed out by every one of your original reviewers. In response, you were able to find the hematocrit for 76 of 77 of your women identified with severe PPH. This implies that you have the data for some of the other ~1200 women. As you did with the severe PPH affected women, please provide the data you DO have for those who did not have severe PPH to compare to the data for those with severe PPH and note the limitation of missing data.

3. Electronic Copyright Transfer Agreement: Neggin Mokhtari and Jim C Huang will need to complete our electronic Copyright Transfer Agreement, which was sent to them through Editorial Manager. Please have them email Randi Zung to confirm that we have the correct email addresses for these authors.

4. Line 47: For clarity, would you consider “For each risk assessment tool, women were stratified into low-, medium- and high-risk groups”? The way written it could be interpreted that you developed a sort of “Composite” of risk based on the 3.

5. Line 53: I am going to push back here a bit. Your overall risk of severe PPH was 1.1%. At the high end of your low/medium risk, the tool identified 0.8% women which clinically isn’t that different from your own risk, unless you conclude that 1.1% risk. (yours) is also “very low”.)

6. Line 62: For clause starting on current line 66 (respectively (CMQCC….) could you replace this with a statement of which one appears to be the best discriminator—highest sensitivity or specificity of both? This clause just tells me they are different but not the directionality of difference.

7. Line 84-87 (highlighted): This sentence belongs in the methods section. I realize your reviewers suggested putting it here, but I disagree. Please move it.

8. Line 104: Here, please put an explanation for use of 4 units transfused as your definition of severe pph. You might also mention that CDC uses 4 units transfused as a criteria for severe maternal morbidity which bolsters the reasons for using it.

Even better for all 3 if you could get permission to include the tools in the supplemental digital content, that would be helpful.

Editorial Office Note: Permission letters for material that is copyrighted must come from the copyright holder (usually the

publisher or owner of the source). The permission letter would need to state that you have permission for print and electronic use.

9. Line 110: This parenthetic phrase doesn't make sense to me. Do you mean women with 2 or more medium risk factors were classified as high risk? Not sure what you mean by the phrase 'high risk factors were required to be classified as high risk". Why did you separate that point out? For instance, why not state that low factors were required to be classified as low risk? I've looked at the CMQCC tool kit and their power point and no where can I find a statement that 2 medium risk factors= medium risk.

10. Line 114: In your response letter, you make the comment "We would like to remind that our goal was to examine risk assessment tools not examining new risk factors. We are happy to add this information if editors would like us to." However, here you specifically list variables not included in the risk assessment tools which is at odds with your rebuttal letter statement. It seems pertinent to include the results of these other variables, especially given the rather moderate-at best performance of the 3 tools as written.

11. Line 136: I can see that CMQCC and AWHONN considers it a risk factor only with other high-risk factors. I think you need to state, however, that you didn't collect this information. You explanation of not including it is problematic to me as noted in earlier comments, as well as to your reviewers. It IS listed at least in the CMQCC criteria and it should have been collected, especially given your definition of pph. You have granularity about a large number of factors which were obtained from the chart reviews done. You were able to report it on the 77 of your severe pph patients. How many others do you have this information for?

12. Line 149: OR's for what? Risk for actual severe PPH for each tool, for each category (low, high medium risk?)

13. Line 151: Why not also look at Sensitivity and specific for the low risk group? It's important to know how that category works as well.

14. Line 188: See my comments at Table 3. I encourage you to make some statements in the discussion regarding which tool works the best in terms of sensitivity and specificity—that's the metric that will drive interventions (not OR's).

15. Line 205: Please add the data for the variables not in the tools that you collected. In discussion, you can suggest whether any of these should be considered for modified assessment tool.

16. Line 231: Important to clarify this. As written, it seems to see that the tools aren't discriminatory at all. You might say, xx% of women in our study who were classified in all 3 tools as low or medium risk had severe pph, a reminder that clinicians and hospitals need to be prepared to care for this emergency for every woman, regardless of the risk level.

17. Line 257: Other than for planned scheduled cesarean delivery, how would this be useful? When a woman starts labor, we don't know what her mode of delivery will be so such a tool by mode of delivery wouldn't be useful when labor starts.

18. Line 265-268: Don't introduce new results in the discussion. Please put into results section.

19. Reference 4: Does the following article provide the information you are trying to cite? If so, please update Reference 4 with "Main EK, Goffman D, Scavone BM, Low LK, Bingham D, Fontaine PL, Gorlin JB, Lagrew DC, Levy BS; National Partnership for Maternal Safety; Council on Patient Safety in Women's Health Care.National Partnership for Maternal Safety: Consensus Bundle on Obstetric Hemorrhage. Obstet Gynecol. 2015 Jul;126(1):155-62. doi: 10.1097/AOG.0000000000000869."

20. Reference 5: Please provide a different reference here. I just spent about 15 minutes on this website and the chart that they have which outlines the AWHONN approach to PPH references a PPH Hemorrhage risk assessment table, which I cannot find. Is there a peer reviewed article that you could substitute for this please so it is easily accessible?

21. Reference 21: Does Practice Bulletin #183, "Postpartum Hemorrhage" address the information you are intending to cite? If so, would you consider citing https://journals.lww.com/greenjournal/Fulltext/2017/10000/Practice_Bulletin_No__183__Postpartum_Hemorrhage.56.aspx instead?

22. Reference 22: Please cite the peer reviewed version of the actual article. I believe this would be the same as Reference 4 (after the requested update above).

23. Box 1: Please insert Box 1 into this file. Do not insert a picture; insert the information in Word so it's editable.

24. Table 1: Please include crude OR and 95% CI's here. Also, did you have the data for all of these different variables for all 7K + patients?

25. Table 1: Why are there missing p values for some of these variables? (add in OR, CI's)

26. Table 2: Move crude OR, 95% CI to Table 1.

27. Table 2: Please bold the aOR's that are significantly different for ease for readership (examples shown, but incomplete; then indicate below what the bold means.

28. Table 3: Your sensitivity and specificity should be calculated for the low risk people—they aren't a "referent" population here. Sensitivity and specificity are not calculated in comparison of one group to another.

29. Table 3: Just eyeballing the 3 tools here and considering the purpose for doing screening (to ID those women for whom some sort of intervention should be done as they are at high risk for hemorrhage AND to avoid doing those things if a woman is at low risk for hemorrhage) it seems that CMQCC High risk score has terrific specificity so you can NOT do Type and Cross, for instance, those women that have a high risk on NYSBOH have the best combination of OR's difference from referenced and reasonable sensitivity.

Sincerely,

Nancy C. Chescheir, MD
Editor-in-Chief

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