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: Oct 17, 2019

To: "John Gebhart" ███████████████████████████████

cc: "John Gebhart" ████████████████████

From: "The Green Journal" em@greenjournal.org

Subject: Your Submission ONG-19-1610

RE: Manuscript Number ONG-19-1610

Prospective Implementation and Evaluation of a Decision-Tree Algorithm for Route of Hysterectomy

Dear Dr. Gebhart:

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 Nov 07, 2019, we will assume you wish to withdraw the manuscript from further consideration.

REVIEWER COMMENTS:

Reviewer #1: The purpose of this manuscript was to 1) evaluate short-term postoperative outcomes after prospectively implementing a clinical decision-tree algorithm to determine optimal hysterectomy route; 2) evaluate the effect of the algorithm on the rate of TVH performed; and 3) discuss estimated effects on health care costs." This was a prospective implementation of a clinical decision-tree algorithm in a single institution, which was compared to their retrospective use of a similar algorithm (with 2 fewer exclusion criteria).

1. How does the reader know that the Primary surgeon prospectively followed the clinical decision-tree algorithm? Was there 100% compliance from the primary surgeon in performing the clinical decision-tree algorithm? Was there an algorithm form (line 95: physical examination template) that the primary surgeon completed at the pre-operative visit that was included in the medical record? Or did they assume the clinical decision-tree algorithm was followed "if clinical examination findings were not complete in the operative report dictation? Could they please supply more information on how the algorithm was introduced to the division of gynecologic surgery?

2. The authors note that "To improve the algorithm and allow its application in a prospective setting, a decision-tree branch was added to allow for a pelvic examination under anesthesia (EUA) at the time of hysterectomy in patients with a history of laparotomy." Do all patients at the time of planned total vaginal hysterectomy have an examination under anesthesia? Or do they only perform an EUA for those patients with a planned TVH with a history of laparotomy?

3. How can the authors evaluate the safety of their algorithm, intra-operative and post-operative complications, without a control group?

4. Of those with expected TVH 15.8% had a more invasive route of hysterectomy. They note that "There were no intraoperative route conversions in the TVH group." If not made intraoperative when was the decision made to perform a more invasive procedure in the expected TVH group, given that the clinical decision-tree algorithm was applied prospectively?

5. Why did the authors select the time frame of November 24,2015 until December 31,2017 for this study? Did they perform an 'a priori' sample size determination and then based on the number of TVHs performed at their institution determine their time-frame, or some other method?

6. How valid is the data in their institutional surgical database? Who abstracted the data? Was the data recorded on a piloted form? Was the data transferred to an electronic database? What was done to ensure accuracy of data recording and transfer? What was done if there was missing data?

7. Please clarify. In the text the authors note EUA-TVH or EUA_robotic-assisted laparoscopic hysterectomy. However, in figure 1 they note Laparoscopic or robotic hysterectomy. How many surgeries were performed with robotic-assist and how many with laparoscopy (without robot)? When was robotic-assistance used for hysterectomy? When do they suggest performing laparoscopic-assisted hysterectomy without robot assist?

8. The authors note that the study was approved by the Mayo Clinic IRB. When did the patients sign informed consent?

Reviewer #2: This study is a prospective validation of a decision-tree algorithm for route of hysterectomy. The algorithm design, based on a retrospective cohort, has been previously published. The topic is particularly relevant: vaginal approach to hysterectomy has been identified as having the highest value, yet the rates of vaginal hysterectomy across the United States continue to decline. The study is well-written and has significant implications for policy change nationally among gynecologic surgeons. A few minor edits:

Abstract: concise, clearly written.

Introduction:
- The introduction quickly establishes the relevance of this study. The study aims are clearly stated. It is unclear why the non-vaginal approach is defaulted to robotic rather than conventional laparoscopy.

Methods:
- Again, the authors may want to clarify why robotic hysterectomy (rather than straight stick laparoscopic) was chosen for all non-vaginal cases. This is not reflective of national practice and may serve to exaggerate the cost differences between the vaginal and endoscopic approaches.
- Please explain why you excluded patients with endometrial hyperplasia from the algorithm.
- You mention "surgical expertise" in vaginal surgery. Please describe the number and training background of the surgeons involved in this study.

Results: The results section is logically organized and clear. The tables and figures are easy to follow.

Conclusion: You mention surgeon education as a pre-impementation step for this study. Please elaborate on how many surgeons were involved, their surgical training background and comment on the applicability of this approach nationally specific to academic practice, private practice, and large healthcare networks.

Reviewer #3: Overall, this is a very well-designed study and also a nicely-written paper. My only issues are easily addressable in a revision:

1. As the vaginal hysterectomy group had the lowest uterine weight on average (and less than the ACOG-suggested maximum, as noted by the authors), what does that say about the likelihood of the average ob/gyn performing VH for larger uteri, as was more prevalent years ago with expert vaginal surgeons, and does this argue for another study looking at the success rate of VH for larger uteri?

2. Just because a scoring system exists does not mean that physicians will use it or even be aware of it. How best to change practice, if possible, based on this scoring system?

3. Along the same lines, the paper does not address the reimbursement for laparoscopic hysterectomy vs vaginal hysterectomy. It is well known that physicians may not gravitate to what may be the most appropriate and cost-effective procedure (eg, vag hyst) for their patients if a better-reimbursed option competes with it and they are also more comfortable with it. It would be good to discuss the differences in reimbursement and any need for preferential reimbursement for vaginal hysterectomy (at least one payor has moved forward with this).

STATISTICAL EDITOR COMMENTS:

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

Table 1: For the 2nd and 3rd columns, with n ≤ 41 and n ≤ 7, should round the %s to nearest integer. No basis for

precision to nearest 0.1% for those column entries. Similarly, for the last column, the estimates of IQR would not be precise, should just cite the range for uterine wgt.

Table 2: Since the n ≤ 46, should round the %s to nearest integer %. No basis for citing to nearest 0.1% precision.

Fig 3: Should include, in table format, the proportion deviation (in fig 3, the number of items red/total) for the expected route vaginal 32/202 = 15.8%, with CIs (10.8-22.4%). Similarly for the EUA then vaginal (14/57, or 24.6%, again with CIs(13.4-41.2%). That is, including CIs with the point estimates will give more context to the results.

Generalizing these results to other populations would also depend on the patient mix. That is, if fewer women were OK'ed for pathway 1, then the overall success rate may be less, since "expected EUA then vaginal" had a lower success rate than did "expected route vaginal".

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.

- I can't tell from the abstract, which needs to stand alone, if the algorithm is used in the preop visit for patient discussion and surgical planning or if done in the OR. Was it used by the surgeon prior to the decision to inform that conversation with the patient or was it used only afterwards and compared to what the surgeon ended up doing. The abstract needs to stand alone so the reader needs to know this in the abstract.

- Highlighted sentence is part of results, not conclusion

- Do you mean better than those who robotic hyst when vag hyst had been the recommended route or those who robotic hyst when recommended route was robotic?

- I don't see a statement of primary and secondary outcomes here or in your methods section. Please clarify. If this list is your primary outcome (post op outcomes as primary) then these should be the first thing mentioned in your results and discussion section followed by your secondary outcomes. Your abstract does not report any surgical outcome data so that would need to be rewritten to include your primary outcomes.

- In revision, please address the reviewer's concern about limiting results of EUA to those with prior laparotomy in the decision tree. Certainly some women without prior laparotomy will have poor descent at EUA that may prompt a decision to avoid vaginal route.

- In abstract you include parity. Is it included? Should it be added here or removed in abstract?

- From the actual weights at time of surgery from extirpated uteri or from imaging results preop from the retrospective cohort. This part of methodology is unclear.

- How was it expected that the surgeons would use the algorithm? I'm sorry--I'm really unclear. You posted it in the clinic and OR but what was the surgeon expected to do with it?

- Did these deviations occur more commonly in path 1 or path 2? Please explain the blue data in fig 3. Why are these patients different than the other EUA patients?

- Not clear why you are reporting the indications for only these 259 and not the entire group. It seems that the indications should have been similar between the groups since they were all for benign indications and this list is the list of usual such suspects (although one could argue that early stage 1A Cvx Ca is not a benign indication).

- All patients had an apical suspension?

- was there unusual blood loss in these patients at time of surgery? Perhaps such should be listed around line 154 where you are describing intra op complications.

- What is an Accordion grade complication? Please provide a reference and list the components of this scoring

system, perhaps in supplemental digital content if lengthy.

- not sure what you mean by "no conversions" since these all must have started out as non-vaginal since they were deviations. Conversions from what to what?

- I don't understand "55.3% of all hysterectomies were expected to have an a prior TVH". First, not clear what an "a prior TVH" would mean in a patient being considered for a hysterectomy. If you mean, that 55% were predicted by the model to be good candidates for a TVH, by my count is 259/365 or 71%. Please clarify.

- previously by your group?

- again, I'm not understanding terminology of "a priori TVH". Do you mean planned TVH? Initial route TVH? Just not understanding.

- on what basis do you say this about the national level?

- but xx transfusions, yy cystotomies....don't cherry pick the lack of ureteral injuries.

- If you are concluding that a skilled vag surgeon should do these as TVH irrespective of algorithm results, why use an algorithm?

- Presumably in the patients with EUA first, the room would be set up for the alternative approach if the EUA associated predicted approach was for robotic approach. Is there a cost associated with setting up the room for the robot even if robot not used? Does that mitigate your cost estimates?

- I'm not sure that MIGS training at all sites do not train their fellows in vag hyst. Perhaps just at Mayo?

2. In addition to my other comments please be aware of terminology such as "In the current study, 55.3% of all hysterectomies were expected to have an a priori TVH." You might rephrase this as something like, "The algorithm results suggested a vaginal hysterectomy for 55% of women"

3. 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.

4. 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.

Please check with your coauthors to confirm that the disclosures listed in their eCTA forms are correctly disclosed on the manuscript's title page.

5. Responsible reporting of research studies, which includes a complete, transparent, accurate and timely account of what was done and what was found during a research study, is an integral part of good research and publication practice and not an optional extra. Obstetrics & Gynecology supports initiatives aimed at improving the reporting of health research, and we ask authors to follow specific guidelines for reporting randomized controlled trials (ie, CONSORT), observational studies (ie, STROBE), meta-analyses and systematic reviews of randomized controlled trials (ie, PRISMA), harms in systematic reviews (ie, PRISMA for harms), studies of diagnostic accuracy (ie, STARD), meta-analyses and systematic reviews of observational studies (ie, MOOSE), economic evaluations of health interventions (ie, CHEERS), quality improvement in health care studies (ie, SQUIRE 2.0), and studies reporting results of Internet e-surveys (CHERRIES). Include the appropriate checklist for your manuscript type upon submission. Please write or insert the page numbers where each item appears in the margin of the checklist. Further information and links to the checklists are available at http://ong.editorialmanager.com. In your cover letter, be sure to indicate that you have followed the CONSORT, MOOSE, PRISMA, PRISMA for harms, STARD, STROBE, CHEERS, SQUIRE 2.0, or CHERRIES guidelines, as appropriate.

6. 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.

7. 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, references, tables, boxes, figure legends, and print appendixes) but exclude references.

8. 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).

9. Provide a short title of no more than 45 characters, including spaces, for use as a running foot.

10. 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.

11. 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.

12. 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.

13. In your Abstract, manuscript Results sections, and tables, the preferred citation should be in terms of an effect size, such as odds ratio or relative risk or the mean difference of a variable between two groups, expressed with appropriate confidence intervals. When such syntax is used, the P value has only secondary importance and often can be omitted or noted as footnotes in a Table format. Putting the results in the form of an effect size makes the result of the statistical test more clinically relevant and gives better context than citing P values alone.

If appropriate, please include number needed to treat for benefits (NNTb) or harm (NNTh). When comparing two procedures, please express the outcome of the comparison in U.S. dollar amounts.

Please standardize the presentation of your data throughout the manuscript submission. For P values, do not exceed three decimal places (for example, "P = .001"). For percentages, do not exceed one decimal place (for example, 11.1%").

14. 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.

15. 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.

16. Figures: Figures 1 and 2 may be resubmitted as-is. Figure 3 is actually a Table and should be relabeled as such.

17. 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.

18. If you choose to revise your manuscript, please submit your revision through Editorial Manager at http://ong.editorialmanager.com. Your manuscript should be uploaded in a word processing format such as Microsoft Word. Your revision's cover letter should include the following:
     * A confirmation that you have read the Instructions for Authors (http://edmgr.ovid.com/ong/accounts/authors.pdf), and
     * A point-by-point response to each of the received comments in this letter.

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 Nov 07, 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

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