OBSTETRICS & GYNECOLOGY

NOTICE: This document contains correspondence generated during peer review and subsequent revisions but before transmittal to production for composition and copyediting:

- Comments from the reviewers and editors (email to author requesting revisions)
- Response from the author (cover letter submitted with revised manuscript)*

**The corresponding author has opted to make this information publicly available.*

Personal or nonessential information may be redacted at the editor's discretion.

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

Date: Apr 09, 2021
To: "Malavika Prabhu" [redacted]
From: "The Green Journal" em@greenjournal.org
Subject: Your Submission ONG-21-793

RE: Manuscript Number ONG-21-793

Antibody response to COVID-19 mRNA vaccination in pregnant women and their neonates

Dear Dr. Prabhu:

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 7 days from the date of this letter. If we have not heard from you by Apr 16, 2021, we will assume you wish to withdraw the manuscript from further consideration.

REVIEWER COMMENTS:

Reviewer #1:

The authors report their data testing for COVID IgG and IgM antibodies in women at delivery and their neonates.

1. Lines 59-65: the statistical language could be simplified or referenced; many of our readers will not understand this level of detail.
2. Specifically, were women consented and then underwent blood sampling for antibodies upon admission for delivery? Did 100% of women admitted and sampled deliver? Did some women decline antibody testing? Was this at one hospital facility? What was the range of the gestational age of the women sampled? Were all women having singleton births? Did all infants survive until discharge? Were the infants tested by 24 hours of life? Was any other information gathered at the time of admission with the exception of what you have reported? The antibody data is reported, but a better sense of the clinical intervention would strengthen this research letter for our readership.

Reviewer #2:

The purpose of this manuscript was to evaluate maternal antibody response and passive antibody transfer to the neonate following COVID-19 vaccination. This was a prospective, observational trial.

1. Could the authors expand their discussion of the assay used to detect IgG and IgM antibodies? What was the sensitivity and specificity of the assay? What was the lower detection limit of the assay? Is there cross-reactivity in the assay, especially with antibodies directed against other respiratory pathogens/viruses? In figure 1 and 2 the authors note "All positive serology cutoffs were 1 (dashed line)." Is this cutoff the lower limit of detection in the assay or is it the level of antibody that is considered immune? Is there a level of IgG antibody where the person is considered immune to COVID-19?

2. How many replicates of maternal peripheral blood and neonatal cord blood were run in each assay?

3. In figure 2, do the authors have a theory on the 2 subjects (one with one dose and one with two doses of vaccine) where there was a positive maternal response but the neonatal IgG level was <1?

Reviewer #3: General: For future studies which may want access to the data, suggest that the Authors provide a complete data set as on-line supplemental material.

lines 83-85: The the denominators (N = 55 and 67) are each < 100, should round the %s to the nearest integer %, not cite to 0.1% precision.

Fig 2: For both graphs, the shaded areas show the CIs for the model, but not for individual patients. Would be more informative to include prediction intervals, which would give the reader a better understanding of the individual variability implied by the data. I think that this is especially important so to not confuse the very low p-values (which test whether the relationship of the paired values is random) vs predicting a given neonatal value, given the maternal value.

For Fig 2A, it would be of interest to include the slope (with CIs) which appears to be ~ $\log_2 3/\log_2 4$, or ~ 1/2. Could be added to the figure legend or text.

EDITORIAL OFFICE COMMENTS:

1. 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.

2. Obstetrics & Gynecology uses an "electronic Copyright Transfer Agreement" (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. Each of your coauthors received an email from the system, titled "Please verify your authorship for a submission to Obstetrics & Gynecology." Each author should complete the eCTA if they have no yet done so.

3. 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), observational studies using ICD-10 data (ie, RECORD), 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, RECORD, CHEERS, SQUIRE 2.0, or CHERRIES guidelines, as appropriate.

4. 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 data definitions at https://www.acog.org/practice-management/health-it-and-clinical-informatics/revitalize-obstetrics-data-definitions and the gynecology data definitions at https://www.acog.org/practice-management/health-it-and-clinical-informatics/revitalize-gynecology-data-definitions. If use of the reVITALize definitions is problematic, please discuss this in your point-by-point response to this letter.

5. Because of space limitations, it is important that your revised manuscript adhere to the following length restrictions by

manuscript type: Research Letters articles should not exceed 2.5 pages (600 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.

6. 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).
* If your manuscript was uploaded to a preprint server prior to submitting your manuscript to Obstetrics & Gynecology, add the following statement to your title page: "Before submission to Obstetrics & Gynecology, this article was posted to a preprint server at: [URL]."

7. 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.

8. 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.

9. In your 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%").

10. Please review examples of our current reference style at http://ong.editorialmanager.com (click on the Home button in the Menu bar and then "Reference Formatting Instructions" document under "Files and Resources). Include the digital object identifier (DOI) with any journal article references and an accessed date with website references. Unpublished data, in-press items, personal communications, letters to the editor, theses, package inserts, submissions, meeting presentations, and abstracts may be included in the text but not in the reference list.

In addition, 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 at the Clinical Guidance page at https://www.acog.org/clinical (click on "Clinical Guidance" at the top).

11. Please upload high res versions of the figures (original file type is okay, doesn't need to be pasted into Word).

When you submit your revision, art saved in a digital format should accompany it. If your figure was created in Microsoft Word, Microsoft Excel, or Microsoft PowerPoint formats, please submit your original source file. Image files should not be copied and pasted into Microsoft Word or Microsoft PowerPoint.

When you submit your revision, art saved in a digital format should accompany it. Please upload each figure as a separate file to Editorial Manager (do not embed the figure in your manuscript file).

If the figures were created using a statistical program (eg, STATA, SPSS, SAS), please submit PDF or EPS files generated directly from the statistical program.

Figures should be saved as high-resolution TIFF files. The minimum requirements for resolution are 300 dpi for color or black and white photographs, and 600 dpi for images containing a photograph with text labeling or thin lines.

Art that is low resolution, digitized, adapted from slides, or downloaded from the Internet may not reproduce.

12. 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 https://wkauthorservices.editage.com/open-access/hybrid.html.

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.

You will be receiving an Open Access Publication Charge letter from the Journal's Publisher, Wolters Kluwer, and instructions on how to submit any open access charges. The email will be from publicationservices@copyright.com with the subject line 'Please Submit Your Open Access Article Publication Charge(s)'. Please complete payment of the Open Access charges within 48 hours of receipt.

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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. Do not omit your responses to the Editorial Office or Editors' comments.

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 Apr 16, 2021, we will assume you wish to withdraw the manuscript from further consideration.

Sincerely,
Torri D. Metz, MD
Associate Editor, Obstetrics

2019 IMPACT FACTOR: 5.524
2019 IMPACT FACTOR RANKING: 6th out of 82 ob/gyn journals

[redacted]

RE: Manuscript Number ONG-21-793

April 11, 2021

Dear Dr. Torri Metz,

We thank you and the three reviewers for evaluating our research letter “Antibody response to COVID-19 mRNA vaccination in pregnant women and their neonates” for publication in *Obstetrics & Gynecology*.

We have gone through and addressed all reviewer comments which we believe greatly improved the overall quality of the manuscript.

We have also **read the instructions for Authors** and included below **a point-by-point response to the reviewer and editorial office comments** at the end of this letter.

The DOI for preprint at bioRxiv is https://doi.org/10.1101/2021.04.05.438524.

We look forward to hearing back from you and appreciate the opportunity to revise our manuscript.

Sincerely,

Yawei (Jenny) Yang, M.D., Ph.D.
Assistant Professor
Assistant Director of the Central Laboratory

[redacted]

Point-by-point response to comments:

Please see below in blue our responses to the reviewer and editorial office comments:

REVIEWER COMMENTS:

Reviewer #1:

1. Lines 59-65: the statistical language could be simplified or referenced; many of our readers will not understand this level of detail.

We thank the reviewer for this suggestion. We have shortened the statistical analysis in the methods sections, as well as included the statistical analysis details in the figure legends. By doing so the details are available for those interested, but also leaves more room for us to address Reviewer #1-Comment #2.

2. Specifically, were women consented and then underwent blood sampling for antibodies upon admission for delivery? Did 100% of women admitted and sampled deliver? Did some women decline antibody testing? Was this at one hospital facility? What was the range of the gestational age of the women sampled? Were all women having singleton births? Did all infants survive until discharge? Were the infants tested by 24 hours of life? Was any other information gathered at the time of admission with the exception of what you have reported? The antibody data is reported, but a better sense of the clinical intervention would strengthen this research letter for our readership.

We thank the reviewer for these questions and have re-written our methods to specifically address these questions. Our methods now state:
"Between January 28 and March 31, 2021, we studied 122 pregnant women and their neonates at the time of birth at a single academic medical center. Women who self-reported receipt of one or both doses of a messenger RNA (mRNA)-based COVID-19 vaccine and gave birth to a singleton neonate (gestational age between 35w0d–41w2d) were included in the study. Semi-quantitative testing for antibodies against S-Receptor Binding Domain (RBD) (ET HealthCare)[5,6] was performed on leftover clinical sera of maternal peripheral blood to identify antibodies mounted against the vaccine, and on leftover clinical sera of neonatal cord blood to study passive immunity. Only women who tested negative for antibodies against the Nucleocapsid Protein (NP) antigen (Roche Diagnostics EUA)[7] were included to ensure antibodies were not due to past SARS-CoV-2 infection. The relationship between immunoglobin (Ig)G antibody levels vs. time was studied using ANOVA. The relationship between maternal and neonatal IgG levels, and between IgG placental transfer (neonatal/maternal) ratio vs. time, was studied using Pearson correlation analysis and linear regression. The study was approved by the Weill Cornell Medicine IRB." (Lines 47-60)
"All women tested negative for SARS-CoV-2 infection using reverse-transcriptase PCR on nasopharyngeal swabs, and all women and neonates were asymptomatic at birth and until time of discharge." (Lines 65-67)

We do not have further clinical data at the moment, but we plan on performing further clinical data extraction as we agree that a better characterization of the clinical course and intervention may allow us to answer more questions related to COVID-19 vaccination in pregnancy.
To also specifically address the questions in this response document: The women underwent blood sampling at time of delivery for routine clinical testing. The neonatal cord blood was sampled at time of delivery for routine clinical testing. Antibody testing was performed on leftover clinical specimens per our pre-approved IRB with a waiver of consent for testing on leftover clinical specimens. Only women who were identified to have received the vaccine were sampled. Testing was performed at one NYC hospital. The range of gestational age was 35w0d to 41w2d. All women had singleton births and all women tested RT-PCR negative for SARS-CoV-2. All infants were healthy with no signs of COVID-19 infection and survived until discharge, and thus none of the infants underwent RT-PCR testing due to lack of suspicion for infection.

Reviewer #2:

1. Could the authors expand their discussion of the assay used to detect IgG and IgM antibodies? What was the sensitivity and specificity of the assay? What was the lower detection limit of the assay? Is there cross-reactivity in the assay, especially with antibodies directed against other respiratory pathogens/viruses? In figure 1 and 2 the authors note "All positive serology cutoffs were 1 (dashed line)." Is this cutoff the lower limit of detection in the assay or is it the level of antibody that is considered immune? Is there a level of IgG antibody where the person is considered immune to COVID-19?

We thank the reviewer for these questions. Given the word limitations, we have cited more clearly the method validations for the assay (Citation 6. Yang HS, Racine-Brzostek SE, Lee WT, Hunt D, Yee J, Chen Z, et al. SARS-CoV-2 antibody characterization in emergency department, hospitalized and convalescent patients by two semi-quantitative immunoassays. Clin Chim Acta [Internet] 2020;509:117–25. Available from: http://dx.doi.org/10.1016/j.cca.2020.06.004.) used which contains the sensitivity and specificity of the assay. Both are clinically approved assays. In brief, the detection values are semi-quantitative index values. The cutoff of 1 is based on the mean+6SD of all negative samples used for clinical validation, thus is it the lower limit of detection for the assay to detect a positive serology response.

We are not able to specifically answer if a certain level of antibody translates to protection or immunity as they require large scale longitudinal follow up, although these studies are proposed by our group in lines 92-93. “Further studies are needed to understand the factors that influence transplacental transfer of IgG antibody, as well as the protective nature of these antibodies.”

2. How many replicates of maternal peripheral blood and neonatal cord blood were run in each assay?

Quality control was performed before each batch of testing. Each maternal and neonatal cord blood sample were tested once. Each machine run tests 10 samples at a time. Mother samples and neonate samples are often run on the same machine run. Inter-run variability was continuously monitored by the clinical laboratories as well as by the manufacturer.

Given the limitations in word count, we have not added this level of detail into the manuscript, but would be happy to do so if the Editors believe this would strengthen the manuscript for the readership.

3. In figure 2, do the authors have a theory on the 2 subjects (one with one dose and one with two doses of vaccine) where there was a positive maternal response but the neonatal IgG level was <1?

This is a great question posed by the reviewer, and one that we are currently investigating; however, we have no specific answer as to why there was no passive immunity. In our previous study (Kubiak et al., 2021; reference 5), we studied passive immunity in native infections and show that passive immunity occurs in 78% of serology positive women, and we also see in that cohort evidence of mothers with high serology response but no evidence of passive immunity. The prediction intervals in Figure 2A show that these are definitely outliers. We suspect differences in placental function acting as barrier between mother and baby that either prevents adequate amounts of - and thus detectible - antibodies from crossing the placenta, or that the placenta itself quenches up all of the antibodies. Another theory is that the antibodies were passed early and then slowly fell below the level of detection. This is a continued area of study.

Given the limitations in word count, we have not added this level of detail into the manuscript, but would be happy to do so if the Editors believe this would strengthen the manuscript for the readership.

Reviewer #3:

General: For future studies which may want access to the data, suggest that the Authors provide a complete data set as on-line supplemental material.

We are currently in the process of further abstracting correlated clinical data for this cohort and plan to share the data together to the greater community since we feel that the data would be more useful released as an entity in conjunction with clinical data. The data will also be passed on to the Department of Health at which point it will also be made publicly available for all studies.

lines 83-85: The the denominators (N = 55 and 67) are each < 100, should round the %s to the nearest integer %, not cite to 0.1% precision.

We thank the reviewer for bringing this point to our attention. We have edited the sentence to read: "44% (24/55) of neonates born to women who received only one vaccine dose had detectable IgG, while 99% (65/67) of neonates born to women who received both vaccine doses had detectable IgG." (Lines 74-77)

Fig 2: For both graphs, the shaded areas show the CIs for the model, but not for individual patients. Would be more informative to include prediction intervals, which would give the reader a better understanding of the individual variability implied by the data. I think that this is especially important so to not confuse the very low p-values (which test whether the relationship of the paired values is random) vs predicting a given neonatal value, given the maternal value. For Fig 2A, it would be of interest to include the slope (with CIs) which appears to be ~ $\log_2 3/\log_2 4$, or ~ 1/2. Could be added to the figure legend or text.

We thank the reviewer for this suggestion. We have included the prediction intervals on the graphs to convey the individual variability implied by the data. We have also included the slope and CIs in Figure 2 (see figure and figure legends).

EDITORIAL OFFICE COMMENTS:

1. 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

2. Obstetrics & Gynecology uses an "electronic Copyright Transfer Agreement" (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. Each of your coauthors received an email from the system, titled "Please verify your authorship for a submission to Obstetrics & Gynecology." Each author should complete the eCTA if they have no yet done so.

Confirmed.

3. 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), observational studies using ICD-10 data (ie, RECORD), 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, RECORD, CHEERS, SQUIRE 2.0, or CHERRIES guidelines, as appropriate.

Given the short format of the paper, instead of writing page numbers, we included which section the items are located in.

STROBE Statement—Checklist of items that should be included in reports of ***cross-sectional studies***

	Item No	Recommendation	Page No
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	N/A
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	Intro
Objectives	3	State specific objectives, including any prespecified hypotheses	Intro
Methods			
Study design	4	Present key elements of study design early in the paper	Methods
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Methods
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	Methods
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Methods
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Methods
Bias	9	Describe any efforts to address potential sources of bias	Methods Results Figure Legends
Study size	10	Explain how the study size was arrived at	Methods
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Methods, Figure Legends
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	Methods, Figure Legends
		(*b*) Describe any methods used to examine subgroups and interactions	Methods, Figure Legends
		(*c*) Explain how missing data were addressed	NA
		(*d*) If applicable, describe analytical methods taking	Figure Legends

		account of sampling strategy	
		(*e*) Describe any sensitivity analyses	NA
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	Methods, Results
		(b) Give reasons for non-participation at each stage	Methods for inclusion, NA for participation at different stages
		(c) Consider use of a flow diagram	NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Methods
		(b) Indicate number of participants with missing data for each variable of interest	NA, only women with all data were included
Outcome data	15*	Report numbers of outcome events or summary measures	Results
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Results, Figure legends
		(*b*) Report category boundaries when continuous variables were categorized	Figure Legends
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Figure Legends
Discussion			
Key results	18	Summarise key results with reference to study objectives	Results, Discussion
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	Discussion
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Discussion
Generalisability	21	Discuss the generalisability (external validity) of the study results	Discussion
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Funding

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

4. 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 data definitions at https://www.acog.org/practice-management/health-it-and-clinical-informatics/revitalize-obstetrics-data-definitions and the gynecology data definitions at https://www.acog.org/practice-management/health-it-and-clinical-informatics/revitalize-gynecology-data-definitions. If use of the reVITALize definitions is problematic, please discuss this in your point-by-point response to this letter.

Confirmed

5. Because of space limitations, it is important that your revised manuscript adhere to the following length restrictions by manuscript type: Research Letters articles should not exceed 2.5 pages (600 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.

Confirmed at 2.5 pages and 596 words

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

* All financial support of the study must be acknowledged.

Confirmed

* 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.

NA

* 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.

NA

* 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).

No past presentation.

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