

# OBSTETRICS & GYNECOLOGY



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- 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](mailto:obgyn@greenjournal.org).

**Date:** Jun 06, 2019  
**To:** "Nevert Badreldin" [REDACTED]  
**From:** "The Green Journal" em@greenjournal.org  
**Subject:** Your Submission ONG-19-884

RE: Manuscript Number ONG-19-884

Racial Disparities in Postpartum Pain Management

Dear Dr. Badreldin:

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 Jun 27, 2019, we will assume you wish to withdraw the manuscript from further consideration.

#### REVIEWER COMMENTS:

Reviewer #1: This is a very well done article that highlights yet another example of the unfortunate trend of race-based differences in the treatment of pain. This is a timely, relevant, and important article that will hopefully encourage readers to self-reflect on their own practice. The strengths of this paper include the large cohort with complete documentation of the 3 outcome variables (discharge pain score, inpatient MME/day and postpartum prescriptions).

My comments are as follows:

#### Abstract:

1. Well done - no specific comments. See below for content suggestions that may affect abstract

#### Introduction:

2. Well done - no specific comments

#### Methods:

3. Line 84: Mentions NSAID allergy as an exclusion criteria. Was acetaminophen allergy assessed? The article does not include NSAID and/or acetaminophen use comparisons (inpatient and by prescription)-consider adding an explanation for this

4. Line 89: Patients who did not identify at NHW, NHB, or Hispanic were excluded due to "small sample size." However the excluded group (n=2,426) is more than double the number of Hispanic patients studied. Consideration of including this sizable group as "other non-Hispanic/non-NHW/Non-NHB" may give more generalizable information as so many patients fell into this category.

5. Line 98: The explanation for standardizing the amount of inpatient oral opioid administered for different postpartum lengths of stay by dividing the total amount of opioid used by days of hospital admission may miss the effect of lessening need for opioid analgesic the further out from delivery. The authors may want to consider including length of stay as a variable.

6. Line 114: States that pain scores were recorded every 8 hours but the article only reports the scores at discharge. This brings to light several issues in teasing out the differences inpatient opioid dosing:

a. Did pain scores vary after delivery vs. prior to discharge? The authors could consider comparing the first postpartum pain score to the discharge pain score and look at the delta as another way to control for differences. For example, if the NHW started at 10 and ended 4.9 and the NHB started at 5.8 and ended at 5.2 -this could offer an explanation for differences in prescribing patterns.

- b. The way the pain medication order is written may play a role in what was dispensed. Were there standard order sets for inpatient pain management? (Line 107-is specific to discharge order sets.) Is it possible to determine if the orders for dispensing opioid included parameters for corresponding pain scores? For example, were the orders written so only patient reported scores of 8-10 were offered opioids? This could be evaluated by comparing the documented every 8 hour pre-discharge pain scores and dispensing of opioids.
- c. Also the before and after pain medications received pain scores would be interesting to compare because if a subset of the patients perceived that the medication didn't make a difference - it could be possible that patients declined subsequent doses or the provider may have chosen to discontinue it (as mentioned line 186-187).
- d. Also can't help but wonder why so many patients were discharged with such high pain scores....

#### Results:

7. Line 135-136: NHW "less likely to have a history of depression or anxiety" - however percentiles listed suggest to be more likely
8. Lines 138-143: See #5 above, did NHW leave the hospital earlier than the other groups? This could account for both a higher MME/day and higher discharge prescriptions. Consider adding length of stay as a variable.

#### Discussion:

This is a complex, multi-factorial problem to address and I applaud the authors for choosing not to comment on the potential etiologies for differential based on the information they provided.

9. Lines 185-187: nicely lay the groundwork for areas of future study
10. Line 195: See #5 and 6 above for possible ways to further tease out potential etiologies with the data available (for consideration in future paper)

#### Figures and Tables:

11. Figure 1: Consider adding excluded to "other races"
12. Table 1: Consider including descriptor that comparison is NHW compared to Hispanic and NHB patients (as written in Line 135)
13. Table 2 and 3: Consider adding "time of discharge" to pain score descriptor, consider adding length of stay.

#### Reference:

14. Appropriate in scope and recently published

#### Reviewer #2:

Precis - Hispanic and non-hispanic black women have disparities in pain management as compared to white women.

Abstract - Objective - to evaluate the racial and ethnic differences in PP pain, inpatient opioid administration, and discharge opioid prescriptions.

Methods - Retrospective cohort study of all deliveries at a single tertiary care center between 12/1/15-11/30/16 - records were reviewed for 3 outcomes: 1) patient reported PP pain at discharge; 2) inpatient opioid dosing during PP hospitalization; 3) receipt of opioid prescription at discharge - the association between race and ethnicity with these was evaluated.

Results - 9900 PP women were eligible, compared to white women - hispanic and black women had greater odds of reporting pain score  $\geq 5$  but received fewer morphine milliequivalents (MME) per day; hispanic women were less likely to receive opioid prescriptions at discharge compared to whites.

Conclusion - hispanic and blacks have disparities in pain management in the PP setting that is not explained by less perceived pain

Introduction - disparities in opioid prescribing exist with more prescriptions given to whites, health care disparities exist in the treatment of pain. This may underlie disparities in the opioid epidemic. The question is raised as to whether there are more disparities in PP pain management - both inpatient and outpatient. The difference in pain scores, inpatient and outpatient opioid administration, and discharge opioid prescriptions were evaluated.

Methods - Retrospective cohort of women hospitalized at tertiary care center for 1 year - excluded if opioid abuse and recent opioid prescription; opioids divided by length of stay and converted to MME. There are no existing guidelines for PP pain management and there are 200 different providers

3 outcomes - 1) patient reported PP pain at discharge; 2) inpatient opioid during PP hospitalization; 3) opioid prescriptions at discharge

Pain scores are assessed every 8 hours, before pain meds, and upon discharge.

Pain scores <5 and those >5 were used

Results - 9900 eligible women - 68.4% nonhispanic whites, 21% hispanic, and 10.6% black, 48.3% nullips and 73.4% with vaginal deliveries

whites more likely to have private insurance

whites less likely to have a history of substance abuse and less likely to have a history of prior c/s - also less likely to have pain >5 (whites- 4.2%, hispanic - 7.7%, black - 11.8%)

whites more MME - 24.8 vs hispanic - 19.4, and black - 23.5 - also more likely to receive prescription for opioids adjusted for public insurance, substance use, mode of delivery, hispanic women had greater odds of pain >5 but fewer adjusted MME and lower odds of receiving a prescription, blacks had greater odds of pain >5 but fewer MME

Discussion - there is a disparity in pain management - more likely pain >5 but fewer MME/day and hispanic women less likely to get a prescription upon discharge.

Higher pain scores but less opioids as inpatient and hispanics (but not blacks) less likely to receive a prescription at discharge.

Is this a difference in prescribing, difference in nurses, would electronic medical sets for orders overcome this problem?

Comments -

While both the opioid epidemic and racial disparities in healthcare are of extreme importance, I have a few questions that limit my ability to interpret the significance of these findings.

There was adjustments made for payor type, but what about the physician or group that provided care. Are the resident seen patients getting different orders for pain meds than those seen by private practice doctors who may want to limit the calls and order opioids more aggressively perhaps? I'd like to know if there are differences in prescriptions and orders based on provider rather than race.

There is adjustment for mode of delivery it says, but I would like to see more focused information on this. Those with vaginal deliveries shouldn't mostly not need narcotics, so it would be a better evaluation if it just focused on c-section patients who truly need them. The results could be confused by vaginal delivery patients being provided narcotics when not necessary.

Why do hispanics and black patients experience more pain? Is there a language issue for the hispanic population? It doesn't make sense that their pain for the same procedures should be different. How is this affected by history of substance use and mode of delivery?

Are fewer MME's being given because of a difference in the orders. This is important to know. If this is the case, this is provider dependent and the study should be limited to resident managed patients only.

The difference in MME/day seems very small. The difference between the NHW and the black population is hard to appreciate as it seems like there is almost complete overlap. It is hard to believe this is truly statistically significant. Furthermore, is this really clinically significant? It amounts to about 1/2 tablet of hydrocodone less per day or even less than that. What difference is clinically significant?

Reviewer #3: This manuscript describes a retrospective cohort study evaluating racial/ethnic differences in postpartum pain scores, inpatient opioid administration, and discharge opioid prescriptions. This simple and straightforward study uses data from a single institution to demonstrate disparities in pain management. Overall this is a well-designed study, a well-written manuscript, and an important and timely topic of investigation.

My biggest critique is that there is significantly more need and use of opioid analgesia following cesarean delivery as compared to vaginal delivery. While I appreciate that the authors control for delivery type, I would like to see a sub-group analysis of the cesarean delivery cohort only. It is relatively rare in most practice settings to send patients home from vaginal delivery with opioids, and this may be diluting a more significant finding. I recommend adding a paragraph/table with cesarean specific analysis.

Additional specific edits:

Lines 36-37: There is a repetition of the race/ethnicity inclusion criteria. Please delete one set.

Line 38: Remove the comma before the period at the end of the sentence.

Line 136: The authors state, "and less likely to have a history of depression or anxiety." According to Table 1, NHW women are MORE likely to have depression or anxiety. Please correct this error.

Tables:

\* Please re-name the tables to be stand alone descriptions of the content of each table. Particularly Table 3, which should be labeled to indicate that it contains the adjusted ORs.

\* Table 1 includes notations that are not within this table (Pain self-reported and Total 4626). Please remove these from below the table as they are referencing Table 2.

\* Table 2: Postpartum opioid prescription --- isn't this in n (%)? Currently listed as mean (+/- SD). Please correct.

#### STATISTICAL EDITOR COMMENTS:

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

lines 103-104, 131-132: This was a large study, with ~ 10 K women. There were ~ 200 providers, so the analysis method included using clusters by discharging provider. The latter decreases the effective sample size and power. Need to include some metric of the correlation within the providers in terms of outcomes of interest.

Table 1: Need to enumerate all missing data.

Table 2: The post-partum opioid Rx should be 3,171 (46.8%), not ( $\pm$  46.8). Need to change footnote also. Were there any missing data for Pain scores? Should indicate the "N" for inpt MME for each column.

Table 3: Should include crude ORs and  $\beta$  to contrast with the adjusted estimates. Could consolidate the point estimate with its 95% CI to save space. Suggest explicitly indicating for the reader that pain score and opioid Rx are formatted as odds and the MME/day is a linear coefficient.

While Table 2 tests whether the data were randomly distributed, neither those results nor Table 3 tests for differences between the Hispanic or NHB, but rather Table 3 tests each of them vs the referent NHW cohort. Should provide analysis as to whether the pain scores, inpt MME or post-partum opioid Rx rates were pairwise different for H vs NHB cohorts.

General: This study has large samples and even the smallest cohort (NHB) had 124 adverse outcomes for pain score. However, since the number of providers was limited, I would strongly encourage the Authors to supplement their analysis with matching on the baseline covariates to demonstrate the differences in pain scores, inpt MME and post-partum

Fig 1: The N's for H and NHB appear to have been reversed as compare to Tables.

If there are sufficient data, it would be of interest to evaluate CD vs vaginal delivery to demonstrate whether the differential rates of opioid use was for all deliveries, or confined to CD for example.

#### 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.\*\*\*

- this appears to be duplicative. please delete.

- are these on a scale of 1-10 or 0-10?

- not sure what you mean by sentence on line 61. Is the pattern with respect to racial and ethnic distribution or related to the different cities/states' rate of OD?

- 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.

- What about parental opioids? Did you include these at all?

- Although you have not yet provide effect size measures or 95% CI's (needed on revision) the differences in the NHB and NHW women's in terms of MME/Day and rates of preprescription at discharge eyeball-test to look like they will be very similar and clearly do not appear to be clinically different. This will need to be addressed in the discussion. Please note that effect sizes (RR, OR) within the zone of potential bias should be noted as weak. Those effect sizes in the zone of potential interest should be emphasized. (Ref: False alarms and pseudo-epidemics. The limitations of observational epidemiology. Grimes DA, Schulz KF. *Ob Gyn* 2012; 120: 920-7)

- Please do a subanalysis of cesarean births and one of vaginal births and then a matching study as suggested by the statistical editor.

- lower compared to either other group?

- This may be the correct way of stating this, but given rising evidence that we have been providing excessive pain meds to some women, do the prior studies show that we've systematically provided "inadequate analgesia" or just that there is a difference? Have we over treated white women and correctly treated minority women? I don't know the answer to this but please confirm the correct interpretation

- Do you want to go "there" and suggest that there may be some institutional or systemic implicit bias present?

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, as well as subsequent author queries. 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 response letter and subsequent email correspondence related to author queries.
- B. OPT-OUT: No, please do not publish my response letter and subsequent email correspondence related to author queries.

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. This abstract was presented at the 39th Annual SMFM meeting. Please note the name, dates, and location of the meeting on your title page.

6. Please submit a completed STROBE checklist with your revised manuscript.

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.

7. 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.

8. 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.

9. 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).

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

11. 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.

12. 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.

13. 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.

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](http://edmgr.ovid.com/ong/accounts/table_checklist.pdf).

15. Figure 1 may be resubmitted as-is.

16. 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.

17. 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 Jun 27, 2019, we will assume you wish to withdraw the manuscript from further consideration.

Sincerely,


Nancy C. Chescheir, MD  
Editor-in-Chief

2017 IMPACT FACTOR: 4.982  
2017 IMPACT FACTOR RANKING: 5th out of 82 ob/gyn journals

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Editor  
Obstetrics and Gynecology

7/1/2019

Dear Dr. Chescheir,

We are pleased to submit this revised manuscript now entitled "Racial Disparities in Postpartum Pain Management" to the Obstetrics and Gynecology. Authorship is unchanged. All authors have approved this version of the manuscript for submission. 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. We have followed the STROBE guidelines.

We have responded to all reviewer queries below and made edits to the manuscript accordingly. Please do not hesitate to contact us with any additional questions or concerns.

Thank you for your consideration,

Nevert Badreldin  
On behalf of all authors

#### REVIEWER 1

**Comment:** Line 84: Mentions NSAID allergy as an exclusion criteria. Was acetaminophen allergy assessed? The article does not include NSAID and/or acetaminophen use comparisons (inpatient and by prescription)-consider adding an explanation for this

**Response:** Unfortunately, we do not have the data on acetaminophen allergy. However, true acetaminophen allergy is exceedingly rare<sup>1</sup> and so it's exclusion is unlikely to alter the results. Our previous work does offer insight in how often NSAIDs and acetaminophen are prescribed for patients.<sup>2</sup> Upwards of 97% of postpartum women in our population receive NSAIDs postpartum. Given how universally it is used, any analysis of difference in NSAID use is unlikely to show a difference. A much smaller proportion of women received acetaminophen independent from an opioid (25%). While this analysis might be interesting for future work, the goal of this paper was to focus on racial disparities of opioid prescribing and use.

**Comment:** Line 89: Patients who did not identify as NHW, NHB, or Hispanic were excluded due to "small sample size." However the excluded group (n=2,426) is more than double the number of Hispanic patients studied. Consideration of including this sizable group as "other non-Hispanic/non-NHW/Non-NHB" may give more generalizable information as so many patients fell into this category.

**Response:** Thank you for this suggestion. We have chosen to exclude this group as it is very heterogeneous; it includes women who are from many different racial/ethnic groups aside from those studied, as well as women who are multiracial or whose race was unknown or not recorded. These additional subgroups are each individually of small sample sizes, and analyzing them together is not conceptually logical. Therefore, we feel the any finding would not be interpretable. This rational has been clarified in the methods of the revised manuscript. Line 95-97: “This group was excluded, as the additional racial/ethnic sub-groups were individually of small sample sizes, and analyzing them together was not conceptually logical.”

**Comment:** Line 98: The explanation for standardizing the amount of inpatient oral opioid administered for different postpartum lengths of stay by dividing the total amount of opioid used by days of hospital admission may miss the effect of lessening need for opioid analgesic the further out from delivery. The authors may want to consider including length of stay as a variable.

**Response:** We appreciate the opportunity for clarification. Length of stay is included in the calculation for inpatient MME and therefore including it again in the regression models would not be appropriate. We agree that women may use less MME on later days of hospitalization than earlier days of hospitalization, but as the goal of the manuscript was to analyze inpatient opioids use overall and not day-to-day trajectories during the hospitalization, we believe our analysis captures this concept adequately.

**Comment:** Line 114: States that pain scores were recorded every 8 hours but the article only reports the scores at discharge.

This brings to light several issues in teasing out the differences inpatient opioid dosing: Did pain scores vary after delivery vs. prior to discharge? The authors could consider comparing the first postpartum pain score to the discharge pain score and look at the delta as another way to control for differences. For example, if the NHW started at 10 and ended 4.9 and the NHB started at 5.8 and ended at 5.2 -this could offer an explanation for differences in prescribing patterns.

**Response:** Unfortunately, we do not have the data regarding pain score at other time points, as our data were designed to evaluate pain scores and their relationship to prescribing patterns. We agree this would be an interesting expansion of our work and we will consider this for future analyses. Nevertheless, the validity of the data we do present remains and we believe it is important to present.

**Comment:** Line 114: States that pain scores were recorded every 8 hours but the article only reports the scores at discharge. This brings to light several issues in teasing out the differences inpatient opioid dosing:

The way the pain medication order is written may play a role in what was dispensed. Were there standard order sets for inpatient pain management? (Line 107-is specific to discharge order sets.) Is it possible to determine if the orders for dispensing opioid included parameters for corresponding pain scores? For example, were the orders written so only patient reported scores of 8-10 were offered opioids? This could be evaluated by comparing the documented every 8 hour pre-discharge pain scores and dispensing of opioids.

**Response:** Opioids were not included in standard order sets for both inpatient and outpatient orders; providers independently wrote orders for scheduled or as needed medications. This is specified in line 114 in the revision. We do have information regarding how prescriptions were written (PRN vs scheduled), however, we have chosen not to analysis that variable as it ultimately detracts from the primary message about opioid use.

**Comment:** Line 114: States that pain scores were recorded every 8 hours but the article only reports the scores at discharge. This brings to light several issues in teasing out the differences inpatient opioid dosing:

Also the before and after pain medications received pain scores would be interesting to compare because if a subset of the patients perceived that the medication didn't make a difference - it could be possible that patients declined subsequent doses or the provider may have chosen to discontinue it (as mentioned line 186-187).

**Response:** This would be very interesting and we will consider this for future analyses. Unfortunately, we do not currently have these data. As noted before, though, the possibility of doing additional analyses in the future does not detract from the value of the data that are presented at this point.

**Comment:** Line 114: States that pain scores were recorded every 8 hours but the article only reports the scores at discharge. This brings to light several issues in teasing out the differences inpatient opioid dosing:

Also, can't help but wonder why so many patients were discharged with such high pain scores....

**Response:** We agree that it is interesting that women are often discharged with high pain scores. This likely represents that as long as their other clinical circumstances are stable, pain scores per se are not used to continue in-hospital care.

**Comment:** Line 135-136: NHW "less likely to have a history of depression or anxiety" - however percentiles listed suggest to be more likely

**Response:** Thank you. This has been corrected. In the revised manuscript, 143 now reads: "NHW women were significantly older and of lower body mass index, and were significantly more likely to be married, nulliparous, have private insurance, to smoke tobacco and to have a history of depression or anxiety compared to Hispanic and NHB patients. NHW women were less likely to have a history of non-opioid substance abuse (Table 1)."

**Comment:** Lines 138-143: See #5 above, did NHW leave the hospital earlier than the other groups? This could account for both a higher MME/day and higher discharge prescriptions. Consider adding length of stay as a variable.

**Response:** Thank you. Please see above response regarding length of stay.

**Comment:** This is a complex, multi-factorial problem to address and I applaud the authors for choosing not to comment on the potential etiologies for differential based on the information they provided.

**Response:** Thank you.

**Comment:** Lines 185-187: nicely lay the groundwork for areas of future study

**Response:** Thank you.

**Comment:** Line 195: See above for possible ways to further tease out potential etiologies with the data available (for consideration in future paper)

**Response:** Thank you for these suggestions. We agree there is much work to be done in this area and we hope to be able to gather some of the suggested data for future analyses.

**Comment:** Figure 1: Consider adding excluded to "other races"

**Response:** Thank you for this suggestion. "Other races" has been added to figure 1.

**Comment:** Table 1: Consider including descriptor that comparison is NHW compared to Hispanic and NHB patients (as written in Line 135)

**Response:** We appreciate this opportunity for clarification. Table 1 uses ANOVA or chi-square tests, as appropriate based on whether the data are continuous or categorical variables respectively, across groups, and thus these comparisons are not specifically to NHW women. However, all multivariable analyses are compared to NHW women. We have clarified this methodology in the last paragraph of the Methods.

**Comment:** Table 2 and 3: Consider adding "time of discharge" to pain score descriptor, consider adding length of stay.

**Response:** Thank you for this suggestion. We have added this information in the footnotes.

## REVIEWER 2

**Comment:** There was adjustments made for payer type, but what about the physician or group that provided care. Are the resident seen patients getting different orders for pain meds than those seen by private practice doctors who may want to limit the calls and order opioids more aggressively perhaps? I'd like to know if there are differences in prescriptions and orders based on provider rather than race.

**Response:** Thank you for this suggestion. Our analysis accounts for individual provider by using multivariable models that account for clustering by provider. We appreciate the suggestion to additionally account for provider type and have performed this analysis. We added provider type (attending physician, trainee physician, advanced practitioner) to our multivariable model. With the inclusion of provider type, NHB women are significantly less likely to receive an opioid prescription at discharge compared to NHW. The remainder of the results remain similar. We have updated the results and discussion accordingly.

**Comment:** There is adjustment for mode of delivery it says, but I would like to see more focused information on this. Those with vaginal deliveries should not mostly not need narcotics, so it would be a better evaluation if it just focused on c-section patients who truly need them. The results could be confused by vaginal delivery patients being provided narcotics when not necessary.

**Response:** We agree that women may not need opioids after delivery, but our work and that of others have shown that opioid use after vaginal delivery is actually quite frequent.<sup>2,3</sup> It is likely that opioids are overused following vaginal delivery. However, this would not explain why that occurred differentially by race, and thus we feel it is still important to include all women in this analysis.

**Comment:** Why do Hispanics and black patients experience more pain? Is there a language issue for the Hispanic population? It does not make sense that pain for the same procedures should be different. How is this affected by history of substance use and mode of delivery?

**Response:** It is likely that this is multi-factorial and we hypothesize may be attributed to cultural differences, language barriers, provider differences, or potentially less aggressive pain management. We believe this is an interesting topic for future work but is beyond the scope of this analysis. Line 214 of our revised manuscript reads: "Further work on patterns of analgesia request, comparisons to baseline pain scores, and other health services factors such as cultural differences and language barriers may address these potential inequities."

**Comment:** Are fewer MME's being given because of a difference in the orders? This is important to know. If this is the case, this is provider dependent and the study should be limited to resident managed patients only.

**Response:** Thank you for this comment. Our multivariable model accounts for providers by clustering of patients at the provider level. Additionally, our results remain essentially unchanged even after including provider type (attending physician, trainee physician and advanced practitioner) to the model, which is a change we have made in this analysis. Given we have adjusted for trainee status in clustering, we do not believe it would be most sensible to do another subgroup analysis, given no evidence that this factor is important and our desire to avoid multiple additional comparisons with the corresponding chance of type I error (as well as increased chance of type II error when smaller subgroups are analyzed alone).

**Comment:** The difference in MME/day seems very small. The difference between the NHW and the black population is hard to appreciate, as it seems like there is almost complete overlap. It is hard to believe this is truly statistically significant. Furthermore, is this clinically significant? It amounts to about 1/2 tablet of hydrocodone less per day or even less than that. What difference is clinically significant?

**Response:** Thank you for making this point. The amount of inpatient MME/day is significantly different between NHW and NHB as shown in Table 3. Although, as mentioned, perhaps this small difference in quantity is not necessarily clinically meaningful, as almost 3 times as many NHB women report pain scores of  $\geq 5$  than NHW women, one may reasonably anticipate that a group with greater pain might require even **greater** MME/day. In this case, even similar MME/day use may still have clinical significance.

### REVIEWER 3

**Comment:** My biggest critique is that there is significantly more need and use of opioid analgesia following cesarean delivery as compared to vaginal delivery. While I appreciate that the authors control for delivery type, I would like to see a sub-group analysis of the cesarean delivery cohort only. It is relatively rare in most practice settings to send patients home from vaginal delivery with opioids, and this may be diluting a more significant finding. I recommend adding a paragraph/table with cesarean specific analysis.

**Response:** We appreciate this opportunity for clarification and respectfully disagree that it is relatively rare for women to be discharged with opioid medications after vaginal delivery. Data have shown that 30% of women fill an opioid prescription at discharge following vaginal delivery, which we believe is a significant and clinically important proportion.<sup>4,5</sup> Additionally, upwards of 25% of women who have had vaginal deliveries use an opioid during the last 24 hours of their postpartum admission.<sup>2</sup> We have done additional analyses including an interaction term for race/ethnicity and route of delivery. As the interaction terms were not significant, there is no rationale to do individual strata of subgroups. We have included this information in our revised manuscript. Line 135-138: "In order to evaluate whether any observed disparity differed according to route of delivery, interaction terms between each race/ethnicity category and vaginal delivery were entered into the multivariable regression, and retained if they were significant, with the plan to perform additional stratified analyses by route of delivery for those outcomes." Line 167-168: "No interaction terms between race/ethnicity and route of delivery were significant, indicating that the observed disparities did not differ according to route of delivery."

**Comment:** Lines 36-37: There is a repetition of the race/ethnicity inclusion criteria. Please delete one set.

**Response:** Thank you. This has been corrected. Line 41-43 of the revised manuscript now reads: "Women were included if they self-identified as non-Hispanic white, non-Hispanic black, or Hispanic, were at least 18 years of age, and did not have documented allergies to non-steroidal anti-inflammatory drugs or morphine."

**Comment:** Line 38: Remove the comma before the period at the end of the sentence.

**Response:** Thank you. This has been corrected.

**Comment:** Line 136: The authors state, "and less likely to have a history of depression or anxiety." According to Table 1, NHW women are MORE likely to have depression or anxiety. Please correct this error.

**Response:** Thank you. This has been corrected.

**Comment:** Table 1 includes notations that are not within this table (Pain self-reported and Total 4626). Please remove these from below the table as they are referencing Table 2.

**Response:** Thank you for this comment. This has been corrected.

### STATISTICAL EDITOR

**Comment:** Lines 103-104, 131-132: This was a large study, with ~ 10 K women. There were ~ 200 providers, so the analysis method included using clusters by discharging provider. The latter decreases the effective sample size and power. Need to include some metric of the correlation within the providers in terms of outcomes of interest.

**Response:** Thank you for this comment. We do believe it is important to cluster by discharge provider, and made the a priori decision to do so given the face validity importance of such a step. This clustering was also asked for by several reviewers.

**Comment:** Table 1: Need to enumerate all missing data.

**Response:** The footnotes in Table 1 for marital status, public insurance, and tobacco use explain the total sample size for each of those variables, which are the only ones in which there were any missing data. If the Statistical Editor prefers a different approach to providing this information, we are happy to make those changes.

**Comment:** Table 2: The post-partum opioid Rx should be 3,171 (46.8%), not ( $\pm$  46.8). Need to change footnote also. Were there any missing data for Pain scores? Should indicate the "N" for inpatient MME for each column.

**Response:** Thank you for this comment. This has been corrected. There were no missing data for pain score or postpartum opioid prescription. Additionally we have provided the total N for inpatient MME/day in a new footnote.

**Comment:** Table 3: Should include crude ORs and  $\beta$  to contrast with the adjusted estimates. Could consolidate the point estimate with its 95% CI to save space. Suggest explicitly indicating for the reader that pain score and opioid Rx are formatted as odds and the MME/day is a linear coefficient.

**Response:** Thank you for this comment. We have made these edits.

**Comment:** While Table 2 tests whether the data were randomly distributed, neither those results nor Table 3 tests for differences between the Hispanic or NHB, but rather Table 3 tests each of them vs the referent NHW cohort. Should provide analysis as to whether the pain scores, inpatient MME or post-partum opioid Rx rates were pairwise different for H vs NHB cohorts.

**Response:** Thank you for this comment. The objective of this analysis was to compare pain scores and opioid use of racial minority women to those of non-Hispanic white women and not to one another. This would be an interesting point for future analyses.

**Comment:** General: This study has large samples and even the smallest cohort (NHB) had 124 adverse outcomes for pain score. However, since the number of providers was limited, I would strongly encourage the Authors to supplement their analysis with matching on the baseline covariates to demonstrate the differences in pain scores, inpatient MME and post-partum.

**Response:** Thank you for this comment. The multivariable analysis was clustered by provider. In addition, we included provider training as a variable in our regression models, as requested by reviewers. In this revision, we have not proceeded with matching, given that the number of factors that can be used to match as well as the need to cluster by provider has the possibility of markedly reducing the sample, and we are not certain — given the results of the multivariable equations — that the benefits are clearly sufficient. Of course, if the editors feel this is a requirement, we will proceed.

**Comment:** Fig 1: The N's for H and NHB appear to have been reversed as compare to Tables.

**Response:** Thank you. This has been corrected.

**Comment:** If there are sufficient data, it would be of interest to evaluate CD vs vaginal delivery to demonstrate whether the differential rates of opioid use was for all deliveries, or confined to CD for example.

**Response:** Thank you for this suggestion. Unfortunately, our outcomes of interest (in particular pain score $\geq$ 5) includes small numbers, we are concerned that further subgrouping of the data may then be underpowered to detect important differences. See comment to Reviewer 3 as well.

## EDITOR

**Comment:** Lines 36-37: this appears to be duplicative. Please delete.

**Response:** Thank you. This has been corrected.

**Comment:** Line 39: are these on a scale of 1-10 or 0-10?

**Response:** The pain scale is from 0 to 10. This is indicated in the methods and has been added to the abstract. Lines 43-46 of the revised manuscript now reads: "Medical records were queried for three outcomes: 1) patient-reported postpartum pain score (on a scale of 0 to 10) at discharge (dichotomized  $<5$  or  $\geq 5$ ); 2) inpatient opioid dosing during postpartum hospitalization (reported as morphine milligram equivalents [MME] per postpartum day); and 3) receipt of an opioid prescription at discharge."

**Comment:** Lines 57 - 61: not sure what you mean by sentence on line 61. Is the pattern with respect to racial and ethnic distribution or related to the different cities/states' rate of OD?

**Response:** Individuals who live in a largely white community are more likely to receive an opioid prescription than those who live in white communities with a lower proportion of white residents. I have adjusted the text to clarify. Lines 63 – 67 of the revised manuscript now reads: "In fact, a recent population-based study using data from California's prescription drug monitoring program reported a nearly 300% difference in opioid prescription prevalence among individuals of different race/ethnicity.<sup>6</sup> Adults from communities with a greater proportion of white individuals were significantly more likely to receive at least 1 opioid prescription than those from lower proportion-white communities.<sup>6</sup>"

**Comment:** 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.

**Response:** Thank you. I have corrected the text. Line 81 of the revised manuscript now reads: “We conducted a retrospective cohort study of women who were hospitalized for delivery at a single, high volume tertiary care center over a one-year period from December 1, 2015 to November 30, 2016.”

**Comment:** What about parental opioids? Did you include these at all?

**Response:** We did not include parental opioids. It is very uncommon for women at our institution to get parental opioids outside of the immediate post-delivery period. A clarifying sentence has been added. Line 107 of the revised manuscript reads: “Parenteral opioids were not included.”

**Comment:** Although you have not yet provide effect size measures or 95% CI's (needed on revision) the differences in the NHB and NHW women's in terms of MME/Day and rates of prescription at discharge eyeball-test to look like they will be very similar and clearly do not appear to be clinically different. This will need to be addressed in the discussion. Please note that effect sizes (RR, OR) within the zone of potential bias should be noted as weak. Those effect sizes in the zone of potential interest should be emphasized. (Ref: False alarms and pseudo-epidemics. The limitations of observational epidemiology. Grimes DA, Schulz KF. *Ob Gyn* 2012;120:920-7)

**Response:** Thank you. Unadjusted odds ratios and beta coefficient have been added to table 3. The discussion has been adjusted to include a statement that results may lie within the zone of potential bias. Lines 161 – 164 now reads: “Importantly, while the significant odds ratios found lie within the zone of potential bias<sup>7</sup>, the trend is notable. Furthermore, one may reasonably expect that groups reporting greater amount of pain would not only receive equal amount of pain management, but a greater amount of pain management, thus making these results especially poignant.”

**Comment:** Please do a sub analysis of cesarean births and one of vaginal births and then a matching study as suggested by the statistical editor.

**Response:** Thank you for this suggestion. Please see response to statistical editor’s comments. Of course, after seeing this response, if you would still like a subgroup analysis, we will proceed.

**Comment:** Line 159-161: lower compared to either other group?

**Response:** Thank you for noting this. I have corrected the manuscript to clarify that Hispanic group were compared to NHW group. Line 161 now reads: “Hispanic women also had lower odds of receiving an opioid prescription upon discharge as compared to NHW women.”

**Comment:** This may be the correct way of stating this, but given rising evidence that we have been providing excessive pain meds to some women, do the prior studies show that we have systematically provided "inadequate analgesia" or just that there is a difference? Have we over treated white women and correctly treated minority women? I don't know the answer to this but please confirm the correct interpretation

**Response:** Thank you. It has not been found that groups are "inadequately" treated, just differentially treated. I have clarified this in the manuscript. We agree that the concept of adequacy of pain treatment is worthwhile for future investigation, but since we cannot speak to that concept based on our data, we will refrain from hypothesizing about which group was potentially over-treated versus undertreated. We have additionally added the following line 202-204: “Additionally, our data are unable to explore adequacy of pain management and therefore, for example, we cannot draw conclusions regarding whether minority women’s pain was under-treated or NHW women’s pain was over-treated.”

**Comment:** Do you want to go "there" and suggest that there may be some institutional or systemic implicit bias present?



**Response:** We prefer not to make a statement that is speculative given that we do not know the cause, and prefer to present our data, which can then be used as a starting point to investigate which factors underlie our results.

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, as well as subsequent author queries. 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 response letter and subsequent email correspondence related to author queries.**

#### **References:**

1. Bachmeyer C, Vermeulen C, Habki R, Blay F, Leynadier F. Acetaminophen (paracetamol)-induced anaphylactic shock. *South Med J* 2002;95:759-60.
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4. Jarlenski M, Bodnar LM, Kim JY, Donohue J, Krans EE, Bogen DL. Filled Prescriptions for Opioids After Vaginal Delivery. *Obstetrics and gynecology* 2017;129:431-7.
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6. Friedman J, Kim D, Schneberk T, et al. Assessment of Racial/Ethnic and Income Disparities in the Prescription of Opioids and Other Controlled Medications in California. *JAMA Intern Med* 2019.
7. Grimes DA, Schulz KF. False alarms and pseudo-epidemics: the limitations of observational epidemiology. *Obstetrics and gynecology* 2012;120:920-7.

**Date:** Jul 17, 2019  
**To:** "Nevert Badreldin" [REDACTED]  
**From:** "The Green Journal" em@greenjournal.org  
**Subject:** Your Submission ONG-19-884R1

RE: Manuscript Number ONG-19-884R1

Racial Disparities in Postpartum Pain Management

Dear Dr. Badreldin:

Before proceeding with an assessment of your revision, please include the analysis discussed in your revision letter:

"General: This study has large samples and even the smallest cohort (NHB) had 124 adverse outcomes for pain score. However, since the number of providers was limited, I would strongly encourage the Authors to supplement their analysis with matching on the baseline covariates to demonstrate the differences in pain scores, inpatient MME and post-partum.

Response: Thank you for this comment. The multivariable analysis was clustered by provider. In addition, we included provider training as a variable in our regression models, as requested by reviewers. In this revision, we have not proceeded with matching, given that the number of factors that can be used to match as well as the need to cluster by provider has the possibility of markedly reducing the sample, and we are not certain — given the results of the multivariable equations — that the benefits are clearly sufficient. Of course, if the editors feel this is a requirement, we will proceed."

An edited version of your manuscript is being sent back to you through your Editorial Manager account. Please email Randi Zung at rzung@greenjournal.org if you cannot locate the file in your submission's record. It can be found under the Attachments link. The file name is "19-884R1 ms (7-12-19v1).docx."


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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Editor  
Obstetrics and Gynecology

8/26/2019

Dear Dr. Chescheir,

We are pleased to submit this revised manuscript entitled “Racial Disparities in Postpartum Pain Management” to the Obstetrics and Gynecology. Authorship is unchanged. All authors have approved this version of the manuscript for submission. 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. We have followed the STROBE guidelines.

We have responded to all reviewer queries below and made edits to the manuscript accordingly. Please do not hesitate to contact us with any additional questions or concerns.

Thank you for your consideration,

Nevert Badreldin  
On behalf of all authors

**Comment:** This study has large samples and even the smallest cohort (NHB) had 124 adverse outcomes for pain score. However, since the number of providers was limited, I would strongly encourage the Authors to supplement their analysis with matching on the baseline covariates to demonstrate the differences in pain scores, inpatient MME and post-partum.

**Response:** We have included a sensitivity analysis of propensity matched cohorts. Notably, in order to meet the balancing property for propensity score matching given the heterogeneity of the groups, only a subset of the covariates used in the original regression were able to be included in the propensity score model.

Line 143-145: “Finally, a sensitivity analysis was conducted in which women of different race and ethnicity were matched using propensity scores.”

Line 175-181: “In the propensity score analysis, findings were overall similar to the primary analysis. Hispanic women were significantly more likely than non-Hispanic white women to report pain scores  $\geq 5$  (OR 1.60; 95% CI 1.23 to 2.09), received significantly fewer adjusted inpatient MME/day ( $\beta$  -4.74; 95% CI -6.58 to -2.91) and were significantly less likely to receive an opioid prescription at discharge (OR. 0.72; 95% CI 0.62 to 0.84). Non-Hispanic black women were significantly more likely than non-Hispanic white women to report pain scores  $\geq 5$  (OR 3.78; 95% CI 2.57 to 5.56) and were significantly less likely to receive an opioid prescription at discharge (OR. 0.81; 95% CI -0.66 to 0.99). Non-Hispanic black women received less inpatient MME/day, although this difference no longer reached statistical significance.”

Table 3: Multivariable and propensity matched analysis of postpartum pain, inpatient opioid per day and discharge opioid prescription by race/ethnicity\*

	Hispanic			Non-Hispanic black		
	OR, 95% CI	aOR <sup>1</sup> , 95% CI	Propensity matched <sup>2</sup> OR, 95% CI	OR, 95% CI	aOR <sup>1</sup> , 95% CI	Propensity matched <sup>3</sup> OR, 95% CI
<b>Pain score ≥ 5   </b>	1.88, 1.54 to 2.29	1.61, 1.26 to 2.06	1.60, 1.23 to 2.09	3.12, 2.52 to 3.88	2.18, 1.63 to 2.91	3.78, 2.57 to 5.56
<b>Opioid prescription at discharge</b>	0.74, 0.67 to 0.82	0.80, 0.67 to 0.96	0.72, 0.62 to 0.84	0.99, 0.87 to 1.12	0.78, 0.62 to 0.98	0.81, 0.66 to 0.99
	$\beta$ , 95% CI	A $\beta$ <sup>1</sup> , 95% CI	Propensity matched <sup>2</sup> $\beta$ , 95% CI	$\beta$ , 95% CI	A $\beta$ <sup>1</sup> , 95% CI	Propensity matched <sup>3</sup> $\beta$ , 95% CI
<b>Inpatient MME/day</b>	-4.82, -6.58 to -3.07	-5.03, -6.91 to -3.15	-4.74, -6.58 to -2.91	-1.22, -3.40 to 0.95	-3.54, -5.88 to -1.20	-1.22, -3.29 to 0.85
<p>MME, morphine milligram equivalents; OR, odds ratio; CI, confidence interval; aOR, adjusted odds ratio; <math>\beta</math>, beta coefficient; a<math>\beta</math>, adjusted beta coefficient  *OR and <math>\beta</math> in referent to non-Hispanic white race/ethnicity.  1. Adjusted: Multivariable regression accounting for age, marital status, nulliparity, gestational age, body mass index, public insurance, tobacco use, anxiety, depression, substance use, mode of delivery, prior cesarean delivery, health care provider type (attending physician, trainee physician, advanced practitioner and clustering of patients at the health care provider level.  2. Propensity matched model for Hispanic adjusted for gestational age, nulliparity, insurance at delivery, tobacco use, anxiety, depression, mode of delivery, and prior cesarean delivery.  3. Propensity matched model for non-Hispanic black adjusted for insurance at delivery, anxiety, depression and mode of delivery.     Self-reported pain at the time of discharge on a scale of 0 (none) to 10 (most severe)</p>						