PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	The Role of Social Deprivation on Asthma Care Quality Among a Cohort of Children in United States Community Health Centers
AUTHORS	Lucas, Jennifer; Marino, Miguel; Fankhauser, Katie; Bazemore, Andrew; Giebultowicz, Sophia; Cowburn, Stuart; Kaufmann, Jorge; Ezekiel-Herrera, David; Heintzman, John

VERSION 1 – REVIEW

REVIEWER	Rita Amaral Faculty of Medicine of University of Porto, Portugal
REVIEW RETURNED	24-Oct-2020

GENERAL COMMENTS	The article "The Role of Social Deprivation in Pediatric Asthma Care" is an interesting and well-written study that examines associations between neighborhood social deprivation and asthma diagnosis documentation and care measures among children seeking care at community health centers". Although this is a current topic, there are some concerns: The main one is the study design. The authors stated that "ICD codes have been found to be valuable in research using EHR data". Although this reviewer agrees with the statement, this should be further discussed taking into account the biases that using ICD codes instead of direct measures of asthma diagnosis. Also, there was no information regarding atopy nor IgE levels. Couldn't these variables be a confounder? Please discuss this issue. Moreover, the information regarding smoking exposure should be presented. This a very common covariable that should be adjusted in the models. As this is a scientific manuscript please avoid the expressions "some private/some public" and "sometimes overweight". Or at least define it in a more precise way. What were the reasons for the 4 age categories? Were they based on previous studies? Also, are there any differences when comparing children vs adolescents in the final model? In table 2, it is presented the Odds Ratio of asthma. However, this reviewer believes that adjusted OR should be presented.

REVIEWER	Ireneous Soyiri University of Hull, United Kingdom
REVIEW RETURNED	21-Feb-2021

GENERAL COMMENTS	The manuscript: “The Role of Social Deprivation in Pediatric Asthma Care” by Lucas and colleagues is an important study on a subject that has wide implications even beyond the confines in which it was carried out. This is well written.

	A minor observation that the authors may choose to address in future revision: There was no clear reason provided to justify the use of NBRM to evaluate prescription rates for albuterol, inhaled steroids, and oral steroids. In other words, what informed the authors choice of “negative binomial regression”? and not any other type of regression. Stating this will add value to the methodology.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Dr. Rita Amaral, University of Porto

Comments to the Author:
The article "The Role of Social Deprivation in Pediatric Asthma Care" is an interesting and well-written study that examines associations between neighborhood social deprivation and asthma diagnosis documentation and care measures among children seeking care at community health centers".
Although this is a current topic, there are some concerns:
The main one is the study design. The authors stated that "ICD codes have been found to be valuable in research using EHR data". Although this reviewer agrees with the statement, this should be further discussed taking into account the biases that using ICD codes instead of direct measures of asthma diagnosis.
Response: Thank you for your comments. We agree that direct measures of asthma presence would be ideal, but we did not have these measures in our data and such results may not be present robustly in this population with less access to resources. Instead, we chose to measure this proxy, acknowledging the possible bias in our limitations section, which represents the actual care delivered to a large, real-world population.

Also, there was no information regarding atopy nor IgE levels. Couldn't these variables be a confounder? Please discuss this issue. Moreover, the information regarding smoking exposure should be presented. This a very common covariable that should be adjusted in the models.
Response: while we agree that atopy/IgE levels could be a confounder, our data are from primary care clinics that often do not do comprehensive allergy testing – generally the patient would be referred to an allergist/immunologist for this. This has been added as a limitation.
We have added a smoking exposure covariate to our models. In our sample 1.1% of patients or their parents have been assessed as current or former smoker, and 14% have been assessed as ever having secondhand smoke exposure, so in order to have a sample large enough to include in the model we combined the current/former/secondhand groups as “ever exposed” compared with “never exposed” and “unknown if exposed”. This has been added to the text, tables, and regression models.

As this is a scientific manuscript please avoid the expressions "some private/some public" and "sometimes overweight". Or at least define it in a more precise way.
Response: Thank you for this comment - these variables have been more clearly defined throughout the manuscript and in tables.

What were the reasons for the 4 age categories? Were they based on previous studies? Also, are there any differences when comparing children vs adolescents in the final model?
Response:. We used the categories to see the differences among different groups who may have different care. Children age 3-5 are often in preschool/kindergarten, while those age 6-10 are in elementary school. Children aged 11-13 are in middle school and those aged 14-17 are high-school

age. We anticipated possible differences in experience based on age, as asthma changes over childhood, and age is also a proxy for utilization. This has been added as a note to Table 1.

The final models include age as a covariate – Table 2 shows the differences in age groups for the models for asthma and asthma severity on the problem list. For the models assessing medication rates, Appendix Table 4 shows differences by age.

In table 2, it is presented the Odds Ratio of asthma. However, this reviewer believes that adjusted OR should be presented.
Response: the adjusted OR was presented – we have clarified this in the table.

Reviewer: 2
Dr. Ireneous Soyiri, University of Hull

Comments to the Author:
The manuscript: “The Role of Social Deprivation in Pediatric Asthma Care” by Lucas and colleagues is an important study on a subject that has wide implications even beyond the confines in which it was carried out. This is well written.
Response: Thank you

A minor observation that the authors may choose to address in future revision:
There was no clear reason provided to justify the use of NBRM to evaluate prescription rates for albuterol, inhaled steroids, and oral steroids. In other words, what informed the authors choice of “negative binomial regression”? and not any other type of regression. Stating this will add value to the methodology.
Response: Thank you for your comments. When calculating rates, Poisson regression is commonly used. However, when data are overdispersed (variance > mean), this violates an assumption of Poisson regression (that the mean and variance are equal), therefore, negative binomial regression can be used to account for the overdispersion .(1)
A statement has been added to the methods section.

1. Hilbe JM. Negative Binomial Regression. 2 ed. Cambridge: Cambridge University Press; 2011.

VERSION 2 – REVIEW

REVIEWER	Amaral, Rita University of Porto, CINTESIS
REVIEW RETURNED	26-May-2021

GENERAL COMMENTS	The authors addressed the points that were proposed in the previous review process well. I have no further comments or concerns.

REVIEWER	Soyiri, Ireneous University of Hull, Hull York Medical School
REVIEW RETURNED	01-Jun-2021

GENERAL COMMENTS	I have no further comments.