PEER REVIEW HISTORY

BMJ Paediatrics Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

This paper was submitted to a another journal from Archives of Disease in Childhood but declined for publication following peer review. The authors addressed the reviewers' comments and submitted the revised paper to BMJ Paediatrics Open. The paper was subsequently accepted for publication at BMJ Paediatrics Open.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Retrospective Analysis of North-West London Healthcare Utilisation by children during the COVID-19 pandemic
AUTHORS	Nijman, ruud Mongru, Rohan Rose, Danielle F Costelloe, Ceire Cunnington, Aubrey

VERSION 1 – REVIEW

REVIEWER	Reviewer name: Dr. Francois Angoulvant Institution and Country: Hopital Necker-Enfants Malades, AP-HP, Emergency Department Competing interests: None
REVIEW RETURNED	26-Oct-2021

GENERAL COMMENTS	Manuscript ID: archdischild-2021-323130 Mongru et al " Retrospective Analysis of North-West London Healthcare Utilisation by children during the COVID-19 pandemic?" I would like to apologize for the delay of my answer. This retrospective study report 8,309,358 health care visits and admission of children < 16 years old between January 1st, 2015 and February 5th, 2021 using the WSIC database in North Western London. The authors used four categories of healthcare visits and admissions and two diagnosis groups (infectious diagnosis group, injury diagnosis group). The monthly count from January 2020 to January 2021 was compared to the 5-years mean (2015-2019) to evaluate change during the pandemic. In this robust study, authors showed a decrease of GP and ED visits, but also emergency admission and to a lesser extent admission > 48h during Pandemic lockdown in 2020. Information is not really new but the magnitude of the data is interesting. Major remarks • The method used which is a comparison of monthly count to the previous 5-year is not optimal. This does not jeopardize most of the results given the magnitude of the difference observed but I strongly suggest to use Time-series methodology which takes into account seasonality, auto-correlation and secular trend. i.e:

	Since the authors provide no details about data from 2015 to 2019 we cannot exclude that a secular trend could explain the small difference in the ratio of GP visits/ED visits in 2020 compared to the 5 previous years. • Some clarification in definition are needed, ie: “secondary care” or sometimes “acute secondary care” is never really defined. • The use diagnostic group (infectious, injury/poisoning) is interesting but they are made up of very diverse diseases. Some diseases are expected to be strongly impacted by lockdown and NPI such as non-COVID-19 respiratory viral infections, sports injury while others are expected to remain stable such as urinary tract infections, or increased such as domestic accidents. This heterogeneity within the diagnosis group should at least be heavily discussed, or withdraw this part from the article, or the authors can choose to focus on some more specific conditions. Please find below a few minor additional points Abstract: • Please clearly define what mean primary and secondary care in the study, avoid their use is in the objectives • “General practice surgery”: could be confusing for non-UK readers What this study adds: • “This study used linked primary…London” this is more methods an not an “add”. • “Proportional monthly…in 2020” should be rephrased since it could induce a false conclusion about an increase of severity. Maybe something like: “the decrease of health care visits was higher in XX than in YY” Introduction • Again please define Primary and secondary care Discussion: • Page 12. First and second paragraph. Authors focus on the “utilisation of healthcare” and “and differential effects by age and diagnosis” Please clarify: Did you mean that for the same symptom families have changed their healthcare utilization?

	These paragraphs should be reworked. • Page 13 Line 32-40: The study results do not allow such comment since the diagnosis group used is too wide. Domestic accident is only a small part of the injury diagnosis group. The bibliography could be improved since similar studies have been performed in other countries

REVIEWER	Reviewer name: Dr. Giorgio Cozzi Institution and Country: Institute for Maternal and Child Health IRCCS "Burlo Garofolo", Emergency Department Competing interests: None
REVIEW RETURNED	17-Oct-2021

GENERAL COMMENTS	I've read the manuscript with great interest. The Authors present the results of a retrospective study regarding the variation in the number of accesses to primary and secondary care in North-West London before and during COVID-19 pandemic. Data are well presented and the sample size strengthens the results. Several international reports have already shown how the period of lockdowns deeply influenced the trend of access to pediatric emergency departments and children's hospitals. The great value of this study was to analyze primary care and secondary accesses together, showing the whole need for care in the first year of this pandemic. Unfortunately, the Authors did not investigate the variation in the number of admissions related to mental health conditions. Infections and injuries are just two aspects of children's health and wellbeing. I suggest adding this point in the discussion and as a limitation of the study.

REVIEWER	Reviewer name: Dr. Danilo Buonsenso Institution and Country: Catholic University of Rome, Department of Pediatrics Competing interests: None
REVIEW RETURNED	17-Oct-2021

GENERAL COMMENTS	This is an important study which I read with great interest. As the authors mentioned, the real plus of this study is the inclusion of primary care data. In fact, reductions in ED attendances may have been related with redistribution to outpatient services, and therefore the inclusion of primary care data makes this study important adding another piece to the puzzle. Therefore, I suggest to consider this study for publication. Data are very well presented. Given the new perspective the authors gave including primary care data, they can discuss a bit more in page 13 line 20-30 the role of NPI on respiratory viruses. A recent paper by Binn et all summarized drops in respiratory viruses and huypothesized a differrent a previously underestimated role of adults in virus circulation (please have a look at

	https://onlinelibrary.wiley.com/doi/10.1002/ppul.25719). As you documented a comprehensive reduction in infections, this is an important data that somehow should be taken into account by policy makers in understanding potential solutions to save lives through prevention, certainly balaning pro and cos (for example, indiscriminate school closure has certainly contributed to raise in mental health problems described by the authors - Pediatr Infect Dis J. 2021 Apr 1;40(4):e146-e150. doi: 10.1097/INF.0000000000003052. PMID: 33464019.

VERSION 1 – AUTHOR RESPONSE

Concerns submission manuscript 'Retrospective Analysis of North-West London Healthcare Utilisation by children during the COVID-19 pandemic' by R. Mongru et al.

Dear editor,

Please find enclosed within this letter the manuscript entitled 'Retrospective Analysis of North-West London Healthcare Utilisation by children during the COVID-19 pandemic' by R. Mongru et al.

We would like to submit this manuscript as an original research article to the BMJ Paediatrics Open.

Previously, researchers around the globe have shown the impact of the COVID-19 pandemic on a wide range of child health issues. Notably, the Archives of Disease in Childhood were among the first to report on the reduced number of children attending emergency departments (Isba et al, ADC, 2020). We now present data using a multisystem approach on how the COVID-19 pandemic and the associated social distancing measures influenced healthcare utilisation for acute paediatric illness. Using a unique linked dataset that has not been used for evaluating acute childhood illness previously, we were able to review the healthcare utilisation of all children in North-West London accounting for 8,309,358 healthcare episodes, including primary care consultations, emergency department attendances and hospital admissions, over a six-year period (2015-2021). Our data confirm the simultaneous and striking reductions in both primary care consultations and emergency department attendances, temporally corresponding with periods of the most stringent restrictions, and also resulting in marked reductions of hospital admissions, with no clear signal of increased numbers of more severe illness. We believe our findings are of interest to your broad readership, as they contribute essential data to the body of existing evidence on how the COVID-19 pandemic has affected child health, and as they offer guidance for preparing for the upcoming winter months.

The manuscript is being submitted to BMJ Paediatrics Open only, and will not be submitted elsewhere while under consideration. The manuscript has not been published elsewhere, and, should it be published in BMJ Paediatrics Open, it will not be published elsewhere - either in similar form or verbatim - without permission of the editors. This manuscript was reviewed whilst under consideration of the Archives of Disease in Childhood. I have uploaded an additional document (as supplementary file for the editor only) with replies to the largely positive comments from the three reviewers, as well as a tracked and a clean version of the modified manuscript.

All named authors have participated in the concept and design of the study; analysis and interpretation of the data; drafting or revising of the manuscript. They have approved the manuscript as submitted, and they are willing to take responsibility for the reported research. Main author and guarantor of this paper is R.G. Nijman, who is also acting as corresponding author. No author received any honorarium, grant, or other form of payment for producing this manuscript. Furthermore, RN affirms that the 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 originally planned have been explained.

We hope you will find this manuscript interesting for the readers of BMJ Paediatrics Open. Looking forward to your response,

Yours Sincerely,

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VERSION 2 – REVIEW

REVIEWER	Reviewer name: Dr. Rachel Mary Hilliam Institution and Country: The Open University, Mathematics and Statistics Competing interests: None
REVIEW RETURNED	16-Dec-2021

GENERAL COMMENTS	This is a well written paper and of interest to the readership of the journal. On the whole the statistics are well presented and explained. I have just two points: Firstly for graphs such as those in Figure 1 showing the trends it is good to see the confidence intervals included in these figures, not least because the four figures have very different counts. It is the difference in counts that it would be helpful to highlight more clearly in the results section, since this accounts for some of the differences between the trends. One further point regarding the actual data. It would be helpful to the readers to give some idea how representative the North-West primary care practice is of the general UK or English population. There will be certain characteristics within the subpopulations of different primary care practices that will lead to the a greater or lesser number of visits. You probably don't need to give lots of details about this, but at least mention it as a limitation (if it is one) in the discussion. It would help for example with a primary care practice in say Birmingham if they compared their figures to understand how the demographics might be different. These are minor comments in a well presented paper

VERSION 2 – AUTHOR RESPONSE

Dear editor,

we thank you for the opportunity to submit a revised version of our manuscript. Overall, we were pleased with the supportive and encouraging comments from yourself and the reviewer. Please find below a point-to-point answer to the remaining issues raised.

with kind regards,

Ruud Nijman
corresponding author

Comments to the Author:
Supplementary Figure 1 and Supplementary Table 1 need to be in the main paper - not supplements.

These have now been included in the main manuscript.

Figure 2 needs to be clear as to which year is which. Additionally, the numbers in Fig 2 do not appear to be the same as in Fig 1c. Please clarify. Is Fig 2 necessary?

At your suggestion, we have moved figure 2 to the supplemental material (now supplemental figure 3). As we only look at 2 groups of diagnoses in Figure 2, these differ from the reported totals in figure 1C and represent part of the total data.

What this study adds. Divide the first statement into two

We have done this.

Reviewer: 1
Dr. Rachel Mary Hilliam, The Open University
Comments to the Author
This is a well written paper and of interest to the readership of the journal. On the whole the statistics are well presented and explained.

We thank the reviewer for these supportive comments.

I have just two points:
Firstly for graphs such as those in Figure 1 showing the trends it is good to see the confidence intervals included in these figures, not least because the four figures have very different counts. It is the difference in counts that it would be helpful to highlight more clearly in the results section, since this accounts for some of the differences between the trends.

We have, also at the suggestion of the reviewer added supplementary table 1 to the manuscript as a main table (now table 2): hopefully, this now sufficiently highlights the differences in absolute counts in the results section.

One further point regarding the actual data. It would be helpful to the readers to give some idea how representative the North-West primary care practice is of the general UK or English population. There will be certain characteristics within the subpopulations of different primary care practices that will lead to the a greater or lesser number of visits. You probably don't need to give lots of details about this, but at least mention it as a limitation (if it is one) in the discussion. It would help for example with a primary care practice in say Birmingham if they compared their figures to understand how the demographics might be different.

We are fortunate that the UK government provides detailed data on regional healthcare provision and utilisation. These are publicly available on https://fingertips.phe.org.uk/profile/child-health-profiles. The population of NW London in this paper is comparable to the greater London population: it is a multicultural inner city area, with extreme differences in wealth and poverty. We have added the child health profile for the London area as a supplemental file, and this allows comparison with average values for the whole of England for more than 30 child health domains. It is also possible to see these data in detail for each individual borough of the in total 8 London boroughs used in this study, with each having their own unique health profiles.

We have added to the Discussion section, paragraph on Limitations:
Firstly, our data represent a multicultural, urban population of a major metropolitan city with widely ranging levels of wealth and deprivation, and these might not be reflective of other geographical areas (Supplementary figure 5 for comparative child health profiles for London vs England).

These are minor comments in a well presented paper

VERSION 3 – REVIEW

REVIEWER	Reviewer name: Institution and Country: Competing interests
REVIEW RETURNED	

GENERAL COMMENTS	

REVIEWER	Reviewer name: Institution and Country: Competing interests
REVIEW RETURNED	

GENERAL COMMENTS	

REVIEWER	Reviewer name: Institution and Country: Competing interests
REVIEW RETURNED	

GENERAL COMMENTS	

VERSION 3 – AUTHOR RESPONSE