Author's response to reviews

Title: Health service use in families where children enter public care: a nested case control study using the General Practice Research Database

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Author's response to reviews: see over
Dear Flory Mae,

Thank you for the opportunity to resubmit our paper entitled ‘Health service use in families where children enter public care: a nested case control study using the General Practice Research Database’ (MS: 5489096758307518). We have made the changes to abstract, tables and figures and altered the background and conclusions to show why we think the research is important.

We have read the reviewers comments and have made significant revisions to the paper which we hope address the points raised. I will go through the comments point by point.

Referee 1

1. Yes the comparison was between the sample of 147 cases and 538 controls with the sample of 370 cases and 1480 controls.

2. This was the purpose for undertaking this study, but the specificity and sensitivity of individual risk factors was not sufficient to allow us to be as prescriptive as we wanted. Maternal mental health was the risk factor that looked the most promising and we have added some comments on this risk factor but 25% of the control group also had maternal mental health problems. Many of the specific risk factors, such as maternal drug misuse where 87.5% of affected mothers had children enter public care is of limited value as only 8 cases were identified in the primary care dataset. We have added comments about screening and recording of risk factors in primary care, as we believe many dyads with risk factors were not identified or recorded.

3. We have added some more discussion about the tables and yes table 2 shows all the variables and table 3 only those variables that remained statistically significant in the stepwise multivariate logistic regression analysis. This is important as one possibility was that all health related risk factors are actually explained by differences in socio-economic status, but we show that is not the case. The case control study design prevents commenting on the size of the effect beyond the raw numbers in table 2.

4. We agree that a change in the duration of up-to research standard data would be a very interesting study and plan to do it.

Referee 2

We would like to explain that this study was not a fishing expedition but rather an attempt to take the risk factors for children entering public care previously identified in social care or government datasets, and see if they have utility in a clinical setting by using routine data collected from primary
care practitioner files. We have sought to explain this more clearly in the paper and have made the rearrangements suggested by referee 2.

Major compulsory revisions:

1. We have completely rewritten the background section to describe the vulnerability of children in public care, their health issues and their adult outcomes. We have described in more detail the literature of health issues at the point of entry to care and lay out the previous literature on risk factors for children entering public care. We have added the specific research questions.

Minor essential revisions:

2. We have brought all the information on GPRD together in the methods section.

3. We have explained how the dataset was reduced in size more clearly; the original dataset from GPRD had siblings, infants under one and dyads with less than 12 months of up-to-research standard data and addressing these issues reduced the data set to the 370 cases and 1480 controls.

4. We have clarified the nature of Read / OXMIS codes – like ICD but broader and have put the variables associated with children entering care in the background section. We make the case for this analysis, in a clinical dataset, being unique and therefore analysing all available and relevant variables.

5. We have adopted the stepwise terminology for the multivariate conditional logistic regression analysis suggested by the reviewer.

6. We have removed the discussion of variables not identified as risk factors except for a short section about maternal alcohol misuse which we kept in as we use it to make the important point that primary care may not ask or record information on risk factors very well.

Discretionary revisions:

7. We hope that we have improved the explanation of the use of 12 months as a suitable period for data analysis. 4 controls to 1 case is a standard epidemiological strategy in case control studies and matching occurred at the level of the individual GPRD recording practice. This meant that matching on many variables limited control availability and we addressed the important issue of SES by making it a variable in the multivariate conditional logistic regression analysis.

8. When we were developing a strategy to answer our research questions we also considered analysing data on fathers. However, when we discussed patient registration with colleagues in primary care practice, it was clear that many fathers are not registered at the same practice as their children. We have deleted the section discussing this point as we are not able to identify data on how common this is in a UK context. One of the issues we had was ensuring robust linkage of mother and child records and this is discussed on page 7-8; there is a robust mother to baby link but many families move general practice and then this link is not available.

9. We discussed moving the data validation to a footnote or endnote but, as we were allowed discretion, we decided to leave that section in the manuscript because selection of cases in a case control study is a key issue and we want to show that we ensured that cases were indeed cases.
10. We have rewritten the conclusion to draw out the important findings and implications of this research.

We hope that these changes are satisfactory.

Best wishes

Dr D Simkiss on behalf of Professor N Spencer, Professor N Stallard and Professor M Thorogood