Reviewer's report

Title: Case-control study of sudden infant death syndrome in Lithuania, 1997-2000

Version: 2 Date: 21 July 2005

Reviewer: Peter S Blair

Reviewer's report:

General
The paper is much improved, the authors should be commended for the amount of revisional work they have done. The data in the tables is fascinating and deserves publication although the analysis does need some essential corrections.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

i) One of the difficulties of performing a regression analysis with so few cases is that the model can become unbalanced and misleading if many factors and especially factors with low prevalence are introduced unchecked. For instance only one control infant wore a cap for sleep compared to 23% of SIDS infants. In the univariate analysis the risk is correctly around 5 yet in the multivariate analysis the odds ratio is quoted as 0.58 which now infers that wearing a cap is protective when it clearly isn't. Similarly with low birthweight & short gestation which are rare amongst the controls but the odds ratio switches from risk to protectiveness in the multivariate analysis. This suggests the model is somehow imbalanced. The multivariate analysis needs to be re-done excluding any variable with an expected cell < 5 (ie any variable where a Fisher's Exact Test has to be performed). These factors should be presented in the univariate analysis and anything significant should be commented on in the discussion and even the abstract but the multivariate analysis has to be restricted to those factors with adequate numbers in each group otherwise the eventual model will be misleading. Such an analysis may also reduce the rather large multivariate confidence intervals of many factors.

ii) On a similar note there are some factors where the expected cells have adequate numbers yet the univariate protective risk (above 1) becomes a multivariate protective effect (below 1); notably paternal education and households having no waged income. This may be because of the imbalance in the model created above, because the categories have got accidently inverted in the multivariate analysis or a real effect. If so the authors should note which covariates in the multivariate analysis influence such a change in the direction of these factors.

iii) In table 1 none of the SIDS infants were found in the parental bed compared to 14% of the controls, this is incorrectly calculated as p=0.998 when in fact it should be p=0.02 (Fisher's Exact Test). The empty cell of bed-sharing SIDS infants prevents this factor being included in the multivariate analysis but this powerful finding should be commented on in the discussion and abstract.

iv) The abstract should not be a list of the most predictive factors in the multivariate model but rather the most interesting findings in context of other results in the field. This should include the fact that side sleeping is more prevalent than supine sleeping in the controls as well as the cases, the lack of co-sleeping deaths, the higher prevalence in warmer months and the risks associated with infants sleeping in a bassinet on a substandard mattress or on a waterproof cloth.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
i) P-values expressed as 0.000 should correctly be expressed as <0.001  
ii) Where the expected numbers in the cells are less than 5 and a Fisher's Exact test has been carried out this should be indicated in the table with a footnote  
iii) When a Fisher's Exact Test is carried out the Odd Ratios should be denoted as n/a (not applicable) rather than 0.00  
iv) 'anyone of the parents smoked' (second to last line in Table 1) should be described as 'just one of the parents smoked'  
v) It should be stated whether sleeping position is how they were put down, found or if this was how they slept for the majority of the night.  
vi) Although sleeping position was not significant the fact that the majority of SIDS infants and controls sleep on their side rather than supine is an important observation that should be mentioned in the abstract.  
vii) The authors mention in the introduction the 'Back to Sleep' campaigns in other countries but do not indicate whether they have had one themselves. I suspect not because parents were never to place their infants prone in the first place. This makes this study unique and should be stated in the introduction.  

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions  
Level of interest: An article of importance in its field  
Quality of written English: Needs some language corrections before being published  
Statistical review: Yes  
Declaration of competing interests:  
I declare that I have no competing interests below