Author’s response to reviews

Title: An outbreak of Salmonella enteritidis phage type 34a infection associated with a Chinese restaurant in Suffolk, United Kingdom.

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Author’s response to reviews: see over
Dear Editor,

Re: An outbreak of Salmonella enteritidis phage type 34a infection associated with a Chinese restaurant in Suffolk, United Kingdom

Thank you for your letter with the reviewers’ comments. Please find below our point-by-point response to the reviewers’ comments. Our responses are presented separately for each reviewer and as some of the comments overlap between the reviewers so do our responses. Our responses are in italics and reviewer comments in bold.

Reviewer – Marc-Alain A Widdowson

General

Phage type 34a may be rare, and as such there is perhaps some interest in documenting an outbreak attributable to it, but this could have been discussed a little further. For instance, since the authors mention that the phage type is associated with travel to Spain… is there any possibility that the eggs came from Spain?

The restaurant received eggs from two sources and one of which was a packaging form. Hence, it was not possible to determine the origin of the eggs (page 10, paragraph 3, lines 4 to 6)

Are there any veterinary data to suggest that the phage type is found in British flocks?

The phage type is rare in Britain and there is one report, which documents isolation of S Enteritidis phage type 34a from a sample of eggs (Reference 4). Our search did not reveal any veterinary data on phage type 34 (page 11, paragraph 3, line 1).

Another angle of public health importance is why the trace-back was not successful. Does this not speak to a failure of food safety efforts? Some discussion of this would be interesting; was the problem in the restaurant or the supplier? Could any recommendations be made to make sure traceback is more likely to be successful next time? I would think that regulatory agencies would be interested.

Although trace back exercises are key in epidemic investigations, often they are not successful due to logistic and practical reasons. In our outbreak one of the suppliers to the restaurant turned out to be a packaging firm and hence we could not determine the origin of the eggs. During our investigation, we found that there were problems with the distribution system, which prevented us from pin pointing the origin of the contaminated eggs (page 12, paragraph 2, lines 2 to 5)
The epidemiologic methods seem sound and the conclusions valid, but additional data could make the analysis clearer. To make the paper brief and address the issue under investigation we have tried to provide the appropriate data. We have included some of the other food items eaten on the day including pork-fried rice and a variety of fish dishes none of which showed an increased attack rate or was significant in the cohort analysis (page 8, paragraph 3, lines 6 to 8)

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
The total number of patrons who consumed food from the restaurant is not mentioned. This is important, in order to help assess if the cohort with data is representative of the total cohort. In particular, the methods would suggest that the cohort with data contains a disproportionate number of cases, compared to the total cohort. If true, this would mean that the risk ratios are biased (probably underestimates). As we stated in the discussion there was no single list of all the patrons who ate/purchased food on the evening. However, all efforts were made to contact the patrons and the outbreak caused considerable publicity in the local media. Hence, we are confident that we have included most patrons. Although the precise number of patrons who were not included will never be known we are confident that their number is small and might be in the region of 10 to 15 (page 12, paragraph 2, lines 8 to 10)

Correct nomenclature is Salmonella (italics) Enteritidis (no italics) We have made the necessary changes

Discretionary Revisions (which the author can choose to ignore)
The point of an a priori hypothesis is a good one especially when analyzing many different food items. However it should be made clear that these egg variables were analysed first. It would also be reassuring to have some data on other food items analysed for completeness’ sake, even if to say that there was no evidence that they played a role. There may have been egg in other less obviously eggy dishes. As we had, an “a priori” hypothesis dishes containing eggs were analysed first and other food items were analysed subsequently. (page 8, paragraph 3, line 3). None of the other food items had an increased food specific attack or the results significant in the cohort analysis. Some of these items are pork fried rice and a variety of fish dishes.

Also the addition of a variable ‘food containing egg-fried rice’ would likely support the conclusion of the eggs as the source. At present it is not possible to tell if the 7 persons with illness who did not eat ‘egg fried rice’ did eat ‘special’ or ‘chicken’ fried rice, or whether they were infected from another source.
As the number of cases was small (7), we analysed the data to determine whether the patrons who did not eat egg-fried rice ate chicken fried rice and or special fried rice. All except one subject gave a history of eating chicken and or special fried rice (page 10, paragraph 1, lines 13 to 14).

Tables 1 and 2 could be combined.
Table 1 provides descriptive data and Table 2 depicts analytical data. Moreover, we feel combining the tables might increase the complexity of the table and readers might find it hard to assimilate all the data. Hence, we have kept the tables separate.

Reviewer - John Threlfall

Salmonella enteritidis
The accepted international designation for salmonella serovars is as follows: The first time the serotype is mentioned it should be written as ‘Salmonella enterica serovar Enteritidis. It may then be referred to as Salmonella Enteritidis or S. Enteritidis – not, S. enteritidis. Please note that there is also a space between the ‘S’ and ‘Enteritidis’. We have made the changes as suggested by the reviewer.

Background
Para 1, line 4. The third most common serovar in humans in 2003 was S. Virchow, not S. Agona
We have changed it accordingly (page 4, paragraph 1, line 4)

The isolates of Salmonella had most likely already been partially identified before sending to the reference laboratory. The referral was for phage typing and not serotyping.
This has been amended (page 7, line 1)

Could the authors provide more details of the laboratory tests – ie, the method used for phage typing, how were the strains identified as phage type 34a, etc. This is obviously a very critical part of the investigation, particularly as two different phage types were identified. As the reference laboratory was named and is internationally recognised in its field, we feel full details of its phage typing method are not appropriate in this paper. However, a reference to the method is quoted (page 7, line 2)

Microbiological
See above. Could the authors also comment on whether there is any molecular relationship between phage type 34a and phage type 4. Hudson et al based on the results of pulsed-field gel electrophoresis concluded that different SE phage types appear to be genetically related or clonal. Discussion on stability of phage types of S. Enteritidis can also be found in the literature. Conversion of phage type 4 to 24, phage type 23 to 8 and 4 to 7 have
been reported. We could not find reports linking phage type 34a and phage type 4. (page 11, paragraph 3)

Discussion
p10, para 3. It should be noted that the outbreak in the USA was caused by a strain of phage type 34 and not 34a.
We have changed it accordingly (page 10, paragraph 3, line 6 to 7)

p11, para 2. It may have been relevant to have cited recent studies that have implicated Spanish eggs as a reservoir of infection for several outbreaks of S. Enteritidis of a range of phage types, in England and Wales.
We have expanded on the public health investigation of S. Enteritidis in raw shell eggs, which provide data on serotypes in Spanish eggs (page 12, first two lines)

General point.
It is very disappointing that a member of staff of the reference laboratory has not been included in the authorship, nor has the work of the laboratory been acknowledged. The phage typing was of paramount importance in this investigation, particularly as the results indicated that not all isolates belonged to phage type 34a. Furthermore, identification of the predominant phage type provided invaluable information as to the possible source of infection.
This was an oversight on our part and an acknowledgement of the valuable contribution of the reference laboratory has been included. However reference laboratory staff cannot consider authorship to be automatic just for carrying out their everyday job.

We hope we have addressed the comments appropriately.

Yours sincerely,

Badrinath (Dr)