Author's response to reviews

Title: Management of acute renal colic in the UK: A questionnaire survey

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Author's response to reviews: see over
Dear sir/madam

Re: MS: 1882847153314930 - Management of acute renal colic in the UK: A questionnaire survey

Please enclosed details of the changes made to our manuscript following the referee’s comments. The details have been structured in the same way as the referee’s comments.

Thank you for your assistance.

Yours faithfully

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**Major Compulsory Revisions**

**Selection of A&E departments:** The selection of A&E departments has been described under **Methods.** A total of 311 UK A&E departments are listed in the handbook of the British Association for Accident and Emergency. We categorised these departments according to their self-declared workload, namely small, medium, large or very large. For each category in each of the 11 Deanery regions, every third unit was selected. We appreciate that international readers may not be familiar with the idea of a Deanery region and therefore we have added a short explanation to the text (Methods: first paragraph). Questionnaires were sent by post. A total of 35 departments did not respond initially and they were sent a second questionnaire by post as a reminder. If a reply was still not received following the posting of the second questionnaire then a telephone call was made. We have amended the text to make this more explicit (Methods: second paragraph)

In **Methods** (second paragraph) we described that the most senior member of the team was invited to complete the questionnaire as they would be the most familiar with department practice. The grade of the respondents has been described. We have inserted a statement to the discussion as how bias may be introduced by the variation in the grade of the respondent (see Discussion: last paragraph)

**Results**

We would prefer not to combine the three tables as each table is concerned with separate issues, and it is our opinion that combining the tables would not help the reader. Furthermore, Table 1 could not be combined with Tables 2 and 3 as the explanatory variable in Table 1 i.e. number of investigations is not the same as that in Tables 2 and 3,
namely departmental workload. Nonetheless, if it was thought necessary we would be willing to combine Tables 2 and 3.

We compared those units that had urology services located within and outside the hospital in their total number of investigations (Table 1). The Chi-Squared test was used instead of the Mann-Whitney test. Although the total number of investigations is a count, it was felt that the Chi-Squared test would be more appropriate not least because when the range in the observed values is small the statistical result is similar. Furthermore, the data is easier to interpret if presented as shown in Table 1 rather than as descriptive data (i.e. mean, standard deviation etc.). Whilst we had reported the results of the statistical test under Results it was omitted from the table legend. We have now added this accordingly and thank the referee for pointing this out. Although we discussed this result, we have amended the text to stress its importance (see Discussion: fourth paragraph).

We compared those units that had urology services located within and outside the hospital in their total number of investigations (Table 1). As the range of investigations was limited, with very few units undertaking three or more, we felt the information would be easier to assimilate and be more informative when presented as the number and percentage of units that undertake none, one or two plus investigations rather than descriptive data (i.e. mean, standard deviation etc.). Therefore, the Chi-Squared test was used instead of the Mann-Whitney test. Whilst we had reported the results of this statistical test under Results it was omitted from the table legend. We have now added this accordingly and thank the referee for pointing this out. Although we discussed this result, we have amended the text to stress its importance (see Discussion: fourth paragraph).

In Table 2 the four categories of departmental workload are compared in the radiological investigations performed plus total number of investigations. The Chi-Squared and Fisher's Exact tests were used. The validity of the Chi-Squared test is dependent on the expected values in the cells and not the observed values as suggested by the referee (Bland, 2000). Conventionally the Chi-Squared is thought invalid if more than 20% of the cells have an expected value less than five or if one of the cells has an expected value less than one (Bland, 2000). When the Chi-Squared test is invalid Fisher's Exact test can be employed regardless of the size of the contingency table, it not being necessary for the two categorical variables to be dichotomous (Bland, 2000). Therefore, the statistical analyses in Table 2 are acceptable and it is not necessary to collapse categories in departmental workload as suggested.

The number of films used in IVU investigations has a skewed distribution. In Table 2 we have provided the upper and lower quartiles in addition to the mean, standard deviation and median. We believe that it helps discern the spread of observations in number of films used. For that reason we like to keep the descriptive statistics currently shown.
Bibliography
We thank the referee for pointing out the necessity to include a reference according
evidence-based medicine. We have updated our bibliography to include the most recent
Cochrane library systematic review of the NSAIDS versus opioids for acute renal colic.

Minor Essential Revisions
The categorised departmental workload groups were compared in the number of films
used during an IVU procedure using the Kruskal-Wallis test. Under the Null Hypothesis
(and particularly if the sample size is large enough using the Central Limit Theorem), the
Kruskal Wallis test statistic follows the Chi-Squared distribution and the test statistic
becomes a Chi-Squared test statistic ($\chi^2$) (Altman, 1993). This is common practice in
statistical packages. Hence we have reported it as so.

This study was interested in establishing what procedures are used in the diagnosis and
the drugs used to relieve pain on presentation. We did not seek to go into details of
subsequent management. Therefore, we feel that any discussion regarding the
assessment of the seriousness of the crisis is outside the scope of the paper.

We respect the referees concerns about any confusion that might arise about the role of
A&E departments in the UK and how they operate within the primary, secondary and
tertiary care model. We have therefore added an appropriate description to the
Background.

We acknowledge the referee’s observation about the use of Codydramol. In the UK,
codydramol is a trade-name for a combination of paracetamol with dihydrocodeine. We
have added a statement accordingly to the text (see Results: Choice of analgesia).

Discretionary Points
We thank the reviewer for sharing the French experience regarding uptake of guidelines
on the management of renal colic. We have added a statement to our text that indicates
the necessity to review practice (see Summary, last paragraph).

References
Oxford: Oxford University Press