

## **Author's response to reviews**

**Title:** Socio-demographic and clinical characteristics of re-presentation to an Australian inner-city emergency department: implications for service delivery.

### **Authors:**

Gaye GE Moore ([dgmoore@optusnet.com.au](mailto:dgmoore@optusnet.com.au))  
Marie MF Gerdtz ([gerdtzmf@unimelb.edu.au](mailto:gerdtzmf@unimelb.edu.au))  
Elizabeth E Manias ([emancias@unimelb.edu.au](mailto:emancias@unimelb.edu.au))  
Graham G Hepworth ([g.hepworth@ms.unimelb.edu.au](mailto:g.hepworth@ms.unimelb.edu.au))  
Andrew A Dent ([Andrew.Dent@svhm.org.au](mailto:Andrew.Dent@svhm.org.au))

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**Author's response to reviews:** see over

30/7/07  
Editorial Manager  
BMC Public Health

Dear Sir/Madam,

**Re: MS: 5496307521385688 - Socio-demographic and clinical characteristics of re-presentation to an Australian inner-city emergency department: implications for service delivery**

Thank-you for your feedback and the opportunity to revise the above manuscript. We wish to resubmit this paper as a Research Article.

In the manuscript we define re-presentation to the emergency department (ED) as re-attendance to the same ED within 28 days from hospital discharge. This definition is congruent with measures of hospital re-admission, but has not previously been used to study patterns of ED service use.

The approach used in this study permitted identification of specific socio-demographic and clinical risk factors for ED re-presentation in a total population. In this context, our work describes a new approach to the measurement of ED service use that may be used to inform the development of evidence based interventions to improve the safety and quality of service delivery in EDs.

In line with the reviewers' comments, we have made a number of changes to the original submission and these are detailed on pages 2-7 of this document.

I look forward to further communication with you about the revised manuscript.

Yours Sincerely

Ms Gaye Moore (on behalf of all authors)  
The School of Nursing  
The University of Melbourne  
Level 1, 723 Swanston Street  
Carlton, Victoria 3053 Australia

**Table 1 – Reviewer 1**

Reviewer Comment		Author Response	Manuscript Revision	
<b>Major Comments</b>				
<p><b>1</b> The authors should be explicit about the contribution of their study to what is already known. The second paragraph of the "background" section is a well written summary of the pertinent literature. It includes the characteristics of frequent users of hospital emergency departments. However, the content of this second paragraph is inconsistent with the statement in the fourth paragraph that "little information is available to identify risk factor for ED re-presentation". What I miss from the last paragraph of the "background" section is a convincing justification of this study and what it was expected to add to the already existing information in the literature on this subject.</p>	<p>Clarification in the third paragraph has been made.</p> <p>The third paragraph has been expanded to provide further justification of the study.</p>	<p><b>Page</b></p>	<p><b>Line</b></p>	<p><b>4</b></p> <p><b>17</b></p>
<p><b>2</b> The manuscript does not adhere to the standards for reporting of the methods. The authors may wish to rewrite the methods section by organizing it into the subsections of setting, patient population (inclusion and exclusion criteria), independent and dependent variables, procedure and data analysis. I believe that the authors should specify and justify the independent variables that are listed in Tables 3 and 5.</p> <p>Is "homelessness" routinely recorded in the emergency department data base?</p>	<p>Revision of the methodology has been made to reduce the paper's length.</p> <p>The methodology consists of the headings: study design, setting, selection of participants including criteria, methods of measurement, data collection and processing and measurement and primary analysis. A new Table 2 has been created to specify the variables and Table 5 deleted.</p> <p>The method of recording homelessness was stated on page 8, first paragraph.</p>	<p>5</p>	<p>15</p>	<p>5</p> <p>23</p> <p>8</p>
<p><b>3</b> I'd strongly recommend to the authors to consult an experienced writer. The length of the paper could have been reduced by more than half without loss of content. For example, it would appear to me that the authors should consider either deleting or justifying the third paragraph of the background section, the section beginning with "In examining ...." of the fourth paragraph of the background section, the analogy between hospital readmissions and repeated presentation to the emergency department, the section beginning with "An alternative measure...." of the first paragraph of the "Study design" section, and making other numerous extensive revisions for the purpose of reducing the paper's length.</p>	<p>The entire paper has been revised in terms of expression, flow and grammar.</p> <p>The definition for re-presentation is provided.</p>	<p>6</p>	<p>7</p>	
<p><b>4</b> I am sensibly modest about my knowledge on statistics, and obviously, the authors had expert statistical advice. Still, even though I am familiar with logistic regressions, I had difficulties in understanding Tables 3 and 5. It would appear to me that Table 3 may be presented in more conventional terms, and Table 5 may be deleted and its content presented in one sentence in the results.</p>	<p>Table 3 now Table 4 is already presented in conventional terms – presenting percentage (or proportion), sample size, odds ratio and 95% confidence interval for each level of an explanatory factor is standard in many journals. Table 5 has now been deleted, and its content presented differently in a new Table 2 addressing the issues of specifying and</p>	<p>25</p>		

		justifying the variables in the study.		
	<b>Minor Revision</b>			
<b>1</b>	I felt uncomfortable with the term "re-presentation". The authors may wish to consider alternative terms such as "repeated presentations"	Re-presentation was used as the appropriate terminology to link with readmission.		
<b>2</b>	The authors may wish to consider defining the government pension in Australia? In what way is age is one entitled to a government pension?	People aged 65 and over are eligible for age pension. This information is now inserted in Table 1.	23	

**Table 2 – Reviewer 2**

	<b>Reviewer Comment</b>	<b>Author Response</b>	<b>Manuscript</b>	
<b>1</b>	<b>Background</b>		<b>Revision</b>	
<b>a</b>	The authors refer to previous research associated with frequent ED use and risk of hospital re-admission but do not differentiate between these two variables. The determinants of ED use with and without hospital admission may differ.	We have provided a definition of readmission. In addition Discharge Outcome (which includes 'Admit') is a significant predictor in the model.	<b>Page</b>	<b>Line</b>
<b>b</b>	While much of the introduction addresses the issue of frequent ED use, the study focused on return visits to the same ED within 28 days.	A comprehensive search of the literature identified no material on re-presentation. The closest information about this subject refers to frequent use of the ED and it is for this reason it is included.		
<b>2</b>	<b>Methods</b>			
<b>a</b>	The authors decided to include in the study, patients who were admitted to hospital, in addition to those discharged from the ED. The rationale for this is unclear. The authors say that ED and hospital length of stay are included as explanatory variables in the data analysis but it is not clear how. Did they examine, for example, interactions between the other predictor variables and hospital admission at the ED visit?	ED and hospital length of stay were included as explanatory variables in the analysis in the usual way that continuous variables are fitted in logistic regression models. It turned out that ED length of stay was significant (see Table 4) but hospital length of stay was not. Interactions between the significant predictor variables were examined, but are not reported on in the paper because not many of them were significant, and including those that were did not improve the prediction of the model.		
<b>b</b>	The study variables are not well described. The categories for the EMD displayed in Tables 3, 4 and 5 need some explanation for those not familiar with this system, for example, attendant source, discharge outcome. Consider creating some composite variables or collapsing some of the categories.	A new Table 2 has been recreated to assist with explanation of EMD information.	23	

c	<p>There is a lengthy section on data collection and classification regarding homelessness. It is not clear why this effort was not applied to other study variables (e.g., medical illness). If this was a variable of primary interest, this should have been specified more clearly in the Introduction. An extraordinary effort appeared to be devoted to this but with disappointing results in terms of inter-rater reliability. The lead abstractor apparently re-examined 80% of all data collected. Would it not have been preferable to have this one person abstract all the data or to have sampled in some way? What effects did data reliability have on the results?</p>	<p>The review of 2000 histories required research assistance towards the end of the data collection. The only impact this had on the reliability of the data was identifying who was homeless or not and what their level of homelessness was.</p> <p>Description of methodology in the paper has been condensed. Homelessness was the only variable that required decision making on the part of the abstractor.</p>	5	13
d	<p>There is a detailed description of the statistical methods. However it is unclear exactly which variables are being entered into each of the analyses. Again, the methods would be clearer if there were a list (with definitions) of all the study variables that were considered as predictors.</p>	<p>The statistical analysis process is clearly described in the last two paragraphs of the Method section. Each explanatory variable was fitted on its own, and those that were significant were considered further. A backwards stepwise procedure then produced a final model.</p>		
<b>3 Results</b>				
a	<p>There was a relationship between homelessness and pensioner status. Can the effect of pension be separated from age, for example, by creating a composite variable with three categories: old-age pension, younger-age pension, younger-age no-pension?</p>	<p>Government Pension is defined by age (&gt;65) and disability so it is not meaningful to create these composite variables.</p>		
b	<p>It is unusual to present significant variables in one table and non-significant variables in another. Table 5 could probably be deleted.</p>	<p>Table 5 has now been deleted.</p>		
c	<p>The issue of collinearity between the predictor variables is another concern. It's not clear how this was dealt with.</p>	<p>Collinearity between predictors is usually of concern in such models, but it doesn't invalidate the results. We recognise that a different way of selecting explanatory variables may result in a slightly different model, but the main results would not change much. In particular, important predictors such as Pensioner (yes/no) would still be highly significant, with similar estimated effects.</p>		
d	<p>I don't feel that the analysis adequately addresses determinants of return visits in patients admitted to hospital and those discharged.</p>	<p>The definition of re-presentation has been revisited on your advice. With the new re-presentation definition a re-analysis was conducted using the same approach and the model did not essentially change. There was only a slight change in estimated percentages. The variable 'Admit' was a discharge outcome and we consider this an important group to remain within the analysis.</p>		
<b>4 Discussion</b>				

a	You should compare your results with those of other studies that investigated determinants of return visits. Is your overall return visit rate comparable with those reported from other studies? I don't think you should confuse these findings with hospital re-admission rates.	A comprehensive review of the literature failed to identify any studies that measured ED re-presentation. It is for this reason we have included wider discussions.		
b	The issue of homeless people having a significantly lower incidence of access to an interpreter needs further exploration. To what extent did these individuals need an interpreter?	Due to the retrospective nature of the data it was not possible to know this information but it would be interesting to explore this further in another study.		
<b>Major Compulsory Revisions</b>				
<p>This paper needs substantial re-working and greater focus and continuity between the objectives, methods, results and conclusions. As it currently stands, there is a lot of extraneous material that detracts greatly from the readability of the paper. Clarify which are the predictor variables of primary interest, and the important covariates (for adjustment of confounding). There should be a section on study limitations that addresses the limitations of the data and potential confounding by factors related to medical need. Finally, I would recommend that either the focus be on patients who are discharged from the ED or that data are presented separately on those admitted to hospital and discharged from the ED.</p>		<p>We have re-worked the paper to improve readability and flow.</p> <p>This study is exploratory in its emphasis, and is better described as “hypothesis generating” rather than “hypothesis testing”. It therefore does not distinguish between predictor variables of primary interest and covariates, but treats all potential predictors similarly.</p> <p>The variables of interest are the significant variables that form the logistic model.</p> <p>There is a section at the end of the Discussion on the limitations of the study. We believe that the Triage Code is one variable which identifies medical need and presenting complaint is another variable and both were represented in the analysis.</p> <p>The definition of re-presentation has been revisited on your advice. With the new re-presentation definition a re-analysis was conducted using the same approach and the model did not essentially change. There was only a slight change in estimated percentages. The variable 'Admit' was a discharge outcome and we consider this an important group to remain within the analysis.</p>		

**Table 3 – Reviewer 3**

	<b>Reviewer Comment</b>	<b>Author Response</b>	<b>Manuscript Revision</b>	
	<b>Minor Essential Revisions</b>			
<b>1</b>	Abstract, Background: Provide a brief background of the problem and its significance for service delivery.	Review of background has been completed.	<b>Page 2</b>	<b>Line 4-10</b>
<b>2</b>	Abstract, Methods: State the statistical methods used to analyse the data, including the criteria for statistical significance.	A phrase has been added to clarify the statistical methods used to analyse the data. The criteria for statistical significance have now been included in the Method section.	<b>2</b>	<b>12-15</b>
<b>3</b>	Abstract, Results: a. Indicate the denominator for the 14% (n = 5,718) patients who represented at the ED. b. Consider reporting the median time to representation instead of the mean. This variable is likely to have a skewed distribution. c. Consider providing the key demographic and clinical characteristics of the sample. d. Report the results in absolute numbers, indicating both the numerator and denominator used for percentages.	a The denominator has been inserted.  b The median time to re-present has been inserted.  c The demographics have been provided in Tables 1 and 2.  d This would take up substantial space and there would be a degree of repetition in this.	<b>2 2</b>	<b>18 18</b>
<b>4</b>	Methods, page 5: Study design: Provide the rationale for the choice of a 28-day interval for defining the primary outcome.	Rationale for re-presentation definition has been inserted.	<b>5</b>	<b>21</b>
<b>5</b>	Primary Data Analysis, page 10, line 10: Replace “range” with “min-max” where min = minimum and max = maximum values.	Replaced as suggested.	<b>9</b>	<b>23</b>
<b>6</b>	Results: a. Page 12, line 15 from bottom: Replace “ranged” with “varied”. b. Page 12, line 13 from bottom: Replace “proportion” with “percentage”. c. See commend 3d.	Inserted varied.  Inserted percentage.  We have reported the results in a manner standard to many journals and do not believe it is necessary to follow this suggestion.	<b>11 12</b>	<b>23 2</b>
<b>7</b>	References: Indicate the last date of access for all web references (e.g. references 8, 26, 37, 39, 40, 46, 47, 49).	The referencing indicated by the journal does not require the access date.		

<b>8</b>	<p>Table 1:</p> <p>a. Consider reporting mean (standard deviation) or median (Q1, Q3). Reporting the mean or median without the corresponding measure of spread is not helpful.</p> <p>b. In the Table caption, replace “N =...” with “n =...” N is usually used to denote a population size while n is for sample size.</p> <p>c. Consider providing the descriptive statistics of the demographics by group (i.e. those who presented at least twice within 28 days vs the rest).</p>	<p>SD has been inserted into Table 1</p> <p>N has been replaced with n.</p> <p>We believe we have provided enough descriptive statistics for the demographics, without breaking it down by group.</p>	<b>22</b>	
<b>9</b>	<p>9. Table 2:</p> <p>a. See comment 8b.</p> <p>b. See comment 8c.</p>	<p>.As for Table 1.</p>	<b>22</b>	
<b>10</b>	<p>Table 3:</p> <p>a. Consider reporting OR (95% CI) and associated p-values. All p-values should be reported to the same number of decimal places.</p> <p>b. Indicate below the table what variables were adjusted for in the multivariable model.</p> <p>c. Indicate the goodness-of-fit statistics of the multivariable model at the bottom of the table. This should also be discussed in the text.</p>	<p>We do not consider P-values to be really necessary in this table, as the 95% CI gives a clear indication as to the closeness of the OR to 1 relative to the variability.</p> <p>All explanatory variables were adjusted for in estimating odds ratios and their associated confidence intervals.</p> <p>We do not consider goodness-of-fit statistics to be of interest or necessary, with the study being exploratory in its emphasis.</p>		
<b>11</b>	<p>Tables 4 and 5: See comments for Table 3.</p>	<p>As for Table 3.</p>	<b>24</b>	
<b>12</b>	<p>Other comment: Consider using a flow-diagram to summarize the selection process of patients for inclusion in the analysis.</p>	<p>We do not see how the selection of patients could be clarified by a flow-diagram. If the reviewer means “selection of variables”, such a diagram would not add much to the description in the text and the results in Table 3.</p>		