

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form ([see an example](#)) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

This paper was submitted to the EMJ but declined for publication following peer review. The authors addressed the reviewers' comments and submitted the revised paper to BMJ Open. The paper was subsequently accepted for publication at BMJ Open.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Acquiring credentials in bedside ultrasound: a cross sectional survey
AUTHORS	Saul, Turandot; Lewiss, Resa; Del Rios, Marina

VERSION 1 - REVIEW

REVIEWER	Dalziel, Peregrine Massachusetts General Hospital, Emergency Ultrasound Division
REVIEW RETURNED	10-May-2013

GENERAL COMMENTS	<p>I think it would be an interesting article to ultrasound/ Emergency department directors. But there is some work to be done to make this article shorter and of a higher standard for the journal.</p> <p>After reading this I was left uncertain what the point of it was and whether the purpose was to provide quantitative evidence for barriers to credentialing or simply provide an interesting report of some survey findings. If it is the former case more attention needs to be paid to clarifying the aims and methods and reporting the results accurately. I think your piece would be better on the opinion/communication side of things. I'm sure program directors could relate to your insights even if no definite findings are made.</p> <p>Also this is heavily directed at American readers with reference the US based guidelines. I am not sure what the NHS guidelines might be or those of another British/European agency, but some effort might be made to investigate this and make reference to it in the introduction as the EMJ is a European journal after all.</p> <p>Unfortunately your review came at a time when I had some lengthy flights.... hence the length of my comments.</p> <p>Introduction</p> <p>Line 72: "Numerous publications address resident...training" please list some references for the interested reader.</p> <p>It is unclear what the aim is. It is stated that it you wish to address "...describe your experience..." and address "...the faculty perceptions of credentialing" but later much of your results deals with characteristics of the faculty and their training and education.</p> <p>Methods</p> <p>Clarifying you objectives/aims may help you clarify the methodology</p>
-------------------------	--

you used.

Clarification is required for at least the following points:

1. There were 41 faculty during the credentialing period. But 11 were exempt from being credentialed. Those exempted were 6 who met the requirements during EM training at your institute, 4 already credentialed (presumably by the same standard and at the same institute...but it is not clear) and 1 doctor working only in fast track. Yet at line 110 it is described that "all faculty were required to be credentialed". Clarify that only the non-exempt faculty were required to complete the training during the period of interest. I suspect you wanted to say "all faculty are required" ? meaning "the usual state of affairs" is that faculty need to be credentialed
2. Clarify that "urgent care" is "fast track" either in the text or the table.
3. Saying "those working in urgent care" implies more than 1. Clearer grammar would be something like, "11 faculty members were considered exempt by the following criteria: they were previously credentialed at the same institute, they received US training during their residency at xxxx, they worked only in Fast track areas "

This leaves 30 that were required to complete the credentialing in the time outlined. Why then were all 41 faculty asked to complete the survey?

This complicates things for the several reasons:

1. It is not clear what proportion of the exempt v non-exempt makes up the 31 respondents. If all 11 of the exempt are respondents then over 1/3 of your responses are much less meaningful.
2. You later attempt to draw conclusions about barriers and motivations yet over 25% of your potential respondents were not even required to undertake the training and it is not clear how they might have responded to the question about completing training. Were they among the 7 that stated they didn't complete the requirements? (because they weren't actually required to etc)
3. You claim to be unique in that you are investigating faculty attitudes to credentialing. Yet 6 of your faculty have completed the requirements during residency and were not required to repeat it, thus up to ~20% of your respondents could be basing their opinions solely on the nostalgia of residency rather than their experience as faculty at your institute in the period you define.

At this point it would probably be difficult to divide the exempt v non-exempt respondents as the responses were anonymous, which very much undermines the legitimacy of your claims of correlation with successful completion. BUT if you were to limit yourself to a more descriptive/expositional piece about your credentialing, with reference to the survey and the opinions of ALL of your staff it would still be interesting.

My point is I don't think you have to make any discoveries with this type of article. It might be better to limit yourself description of opinions of faculty.

Results

The results section could be contracted. It is simply a statement of the survey proportions. I would suggest that you either write the results out in the prose explicitly or in tables, but not both. Otherwise the prose seems redundant and as though you are trying to eke out more from your results than there actually is; which you need not do. Concise articles are good articles. I suggest that tables might be preferable with brief comments and then you can draw attention to any interesting findings in the discussion. You should try to limit yourself to 5 tables

Table 1 is uninformative and could be stated in the text. If you want to keep the table, this is probably more suitable for the results section rather than the methods..

Table 2 is redundant as it can be deduced from the information contained in table 4. Perhaps combine these. ie make table 2a "Totals" column for table 4 and add a column row to explain the 3 that did not specify program completion.

Table 5 provides no new information as you have written it all in the text. If you think it is important to have a table. I would suggest either listing the "top 3" motivators without numbers and referring to the table.

Line 146: "Characteristics demonstrating correlation with completion of the credentialing"

If these correlations have been demonstrated then please provide evidence for this and the criteria chosen. In the methods section Line 123, there is the statement "Descriptive statistics, frequencies and cross tab analyses were performed using SPSS TM software." So it appears that that you have already done this. Please provide the tests you performed and the p-values.

On the question of EM vs Non-EM residence: Because the non-completion group is small (and therefore some cells will have an expected value of <5), a straight Chi2 test would not be correct to use. A Fisher's exact test would be more appropriate.

Eg.

Completed Not Completed Total

EM Residents	19	4	23
%	82.61	17.39	100
No EM Residency	2	3	5
%	40	60	100

Total	21	7	28
%	75	25	100

Fishers exact test has a p value of 0.08 for this table.

If 0.1 is your predetermined level of significance/alpha (which you ought to state in the methods) then you can claim that you found this to be correlated. Otherwise you shouldn't make this claim.

Your statement in line 149:
"19/21 faculty that completed the credentialing were EM residency trained". This would be an impressive statistic if there were a 1:1

ratio of EM trained vs non EM trained physicians. But 23/31 respondents were EM trained so they should make up about 3/4 of the credentialing group (ie ~15/21). This statement seems to attempt to establish a link between EM residency training and completion of credentialing which is misleading. What is important in this case is showing that a higher proportion of EM trainees complete training and not that a higher proportion of those completing training are EM grads. Better might be "19/23 EM residency trained physicians completed the requirements compared with 2/5 of those that were not residency trained". This applies to the same statement in the abstract also.

For ultrasound training in residency: there are 6 in this category, Are these the same 6 that were exempt due to training at XXXX? It is unclear. Is it an unfortunate coincidence that 6 faculty members did EM residency elsewhere with US training? If the 6 exempt people answered the survey were they just confused when asked if they had completed the credentialing? Thinking that the credentialing during residency was what was being asked about?

If we assume they were trained elsewhere, then I make the table to be:

Completed	Not Completed
No US in res	15 7 22
US in Res	6 0 6

Total 21 7 28

Fisher's Exact = 0.288
Fisher's Exact 1 sided = 0.144

With this table it would be difficult to make the claim that residency US training is correlated with credentialing completion. As much as 100% is compelling 6/6 is still consistent with a range of proportions down to 60% with 95% confidence intervals.

To be safe, the statement needs to be modified to "Characteristics which may be correlated with the completion of credentialing"

For the result about the years of post grad training in the completed vs non-completed group (lines 151-156):

It is too enigmatic to state that "the confidence intervals overlap". As per the journal's statistical guidelines, please provide the confidence intervals, specifying the width (eg 95%) that led to the overlap, or a p value for the difference between means. For a point estimate/p-value, a T-test with unequal variance could be used or, if the Post-Grad year's distribution is skewed, you could use a non-parametric test like signed-rank/Mann-Whitney U test.

On a philosophical level though, you are simply providing a report on what happened in your own institute for a credentialing program and it is probably not necessary to make causal inferences for generalizable claims. If you want draw conclusions on whether people who complete or don't complete differ in some way then put this as an aim of the study. In this case you should preferably state a hypothesis in the Aims/Objectives, predefine your categories and questions and declare this process in the methods. Otherwise restrict yourself to statements like "The mean PG year was higher in

	<p>the group that did not complete the credentialing (p=x.x)".</p> <p>For your observational purposes and the tone of the article you could simply state the proportions/mean (+/- confidence intervals and ranges/std deviations) in a table with an additional column containing P-values for the relevant statistical test. The reader can then draw their own conclusions based on your work.</p> <p>From line 163 the paragraph states throughout that 8 physicians did not complete the credentialing but the tables say 7. Please correct.</p> <p>Discussion</p> <p>The discussion seems to spend most of its time dealing with the comparison between academic and non-academic settings. You could remove the heading "Limitations", otherwise it seems that the limitations constitute about 90% of the discussion. But your points seem valid and may be insightful. Discuss your results before going into the limitations in great detail.</p> <p>The conclusion does not actually offer a conclusion; it just lists what you did. The previous paragraph and bullet list might make a better conclusion and you could somehow combine this with your suggested research list.</p>
--	---

- The manuscript received a second review at the Annals of Rheumatic Disease but the reviewer did not give permission for their comments to be published

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Comments to the Author

General Comments:

I think it would be an interesting article to ultrasound/ Emergency department directors. But there is some work to be done to make this article shorter and of a higher standard for the journal.

After reading this I was left uncertain what the point of it was and whether the purpose was to provide quantitative evidence for barriers to credentialing or simply provide an interesting report of some survey findings. If it is the former case more attention needs to be paid to clarifying the aims and methods and reporting the results accurately. I think your piece would be better on the opinion/communication side of things. I'm sure program directors could relate to your insights even if no definite findings are made.

Thank you. We think so too. Many of the incentives we faced and barriers we identified could apply to other educational processes geared towards practicing physicians who have already completed their training process.

Also this is heavily directed at American readers with reference the US based guidelines. I am not sure what the NHS guidelines might be or those of another British/European agency, but some effort

might be made to investigate this and make reference to it in the introduction as the EMJ is a European journal after all.

The Core (Level 1) Ultrasound Curriculum by the College of Emergency Medicine, London, UK was added as a training guideline standard as well.

Unfortunately your review came at a time when I had some lengthy flights.... hence the length of my comments. 😊

Introduction

Line 72: "Numerous publications address resident...training" please list some references for the interested reader.

Yes. 4 references were added.

It is unclear what the aim is. It is stated that it you wish to address "...describe your experience..." and address "...the faculty perceptions of credentialing" but later much of your results deals with characteristics of the faculty and their training and education.

Yes. We did an assessment of their prior education and training as well. The sentence was changed to: After completion of credentialing in the applications of aorta and pelvic ultrasound, we conducted a faculty survey to evaluate their previous experience and training in bedside ultrasound and the perceptions of the credentialing process for those required to complete it.

Methods

Clarifying your objectives/aims may help you clarify the methodology you used.

Clarification is required for at least the following points:

1. There were 41 faculty during the credentialing period. But 11 were exempt from being credentialed. Those exempted were 6 who met the requirements during EM training at your institute, 4 already credentialed (presumably by the same standard and at the same institute...but it is not clear) (clarified that they were credentialed utilizing the same requirements while faculty members at our institution) and 1 doctor working only in fast track. Yet at line 110 it is described that "all faculty were required to be credentialed". Clarify that only the non-exempt faculty were required to complete the training during the period of interest. I suspect you wanted to say "all faculty are required" ? meaning "the usual state of affairs" is that faculty need to be credentialed

Yes. It is unclear. Changed to non-exempt faculty in line 10.

2. Clarify that "urgent care" is "fast track" either in the text or the table.

Clarified.

3. Saying “those working in urgent care” implies more than 1. Clearer grammar would be something like, “11 faculty members were considered exempt by the following criteria: they were previously credentialed at the same institute, they received US training during their residency at xxxx, they worked only in Fast track areas ”

Yes. It is unclear. Changed to “and the physician who worked solely as an urgent-care (fast track) provider (Table 1).“

This leaves 30 that were required to complete the credentialing in the time outlined. Why then were all 41 faculty asked to complete the survey?

This complicates things for the several reasons:

1. It is not clear what proportion of the exempt v non-exempt makes up the 31 respondents. If all 11 of the exempt are respondents then over 1/3 of your responses are much less meaningful.
2. You later attempt to draw conclusions about barriers and motivations yet over 25% of your potential respondents were not even required to undertake the training and it is not clear how they might have responded to the question about completing training. Were they among the 7 that stated they didn't complete the requirements? (because they weren't actually required to etc)

In the interest of anonymity we asked everyone to take the survey. We introduced it during a faculty meeting and in an email request and asked that they not answer questions that did not apply to them. We hope that they followed the directions and it was not the 7 exempt people who answered that question but rather the 7 who were non-exempt and didn't complete the requirements. Of course, as you state later, since the survey was anonymous, we can not be completely sure.

3. You claim to be unique in that you are investigating faculty attitudes to credentialing. Yet 6 of your faculty have completed the requirements during residency and were not required to repeat it, thus up to ~20% of your respondents could be basing their opinions solely on the nostalgia of residency rather than their experience as faculty at your institute in the period you define.

At this point it would probably be difficult to divide the exempt v non-exempt respondents as the responses were anonymous, which very much undermines the legitimacy of your claims of correlation with successful completion. BUT if you were to limit yourself to a more descriptive/expositional piece about your credentialing, with reference to the survey and the opinions of ALL of your staff it would still be interesting.

Yes. It would be impossible at this point. As you said, it may be better to redefine the purpose and not over-state what it is. Sentence changed to “However, to our knowledge, no prior publication has addressed faculty opinions of bedside ultrasound and the perceptions of the ultrasound credentialing process of faculty members required to complete it.

My point is I don't think you have to make any discoveries with this type of article. It might be better to limit yourself description of opinions of faculty.

Sure. Clarified that this is a description of opinions. Sentence changed to "After completion of credentialing in the applications of aorta and pelvic ultrasound, we conducted a faculty survey to evaluate their previous experience and training in bedside ultrasound and the perceptions of the credentialing process for those required to complete it."

Results

The results section could be contracted. It is simply a statement of the survey proportions. I would suggest that you either write the results out in the prose explicitly or in tables, but not both. Otherwise the prose seems redundant and as though you are trying to eke out more from your results than there actually is; which you need not do. Concise articles are good articles. I suggest that tables might be preferable with brief comments and then you can draw attention to any interesting findings in the discussion. You should try to limit yourself to 5 tables

Table 1 is uninformative and could be stated in the text. If you want to keep the table, this is probably more suitable for the results section rather than the methods..

Table 1 was deleted.

Table 2 is redundant as it can be deduced from the information contained in table 4. Perhaps combine these. ie make table 2a "Totals" column for table 4 and add a column row to explain the 3 that did not specify program completion.

Table 2 was deleted and table 4 was changed as requested. Table 3 was made the new Table 1. Table 4 was made the new Table 2.

Table 5 provides no new information as you have written it all in the text. If you think it is important to have a table. I would suggest either listing the "top 3" motivators without numbers and referring to the table.

Table 5 was deleted. All the information as you stated is in the text.

Line 146: "Characteristics demonstrating correlation with completion of the credentialing"

If these correlations have been demonstrated then please provide evidence for this and the criteria chosen. In the methods section Line 123, there is the statement "Descriptive statistics, frequencies and cross tab analyses were performed using SPSS TM software." So it appears that that you have already done this. Please provide the tests you performed and the p-values.

On the question of EM vs Non-EM residence: Because the non-completion group is small (and

therefore some cells will have an expected value of <5), a straight Chi2 test would not be correct to use. A Fisher's exact test would be more appropriate.

Eg.

	Completed	Not Completed	Total
--	-----------	---------------	-------

EM Residents	19	4	23
--------------	----	---	----

%	82.61	17.39	100
---	-------	-------	-----

No EM Residency	2	3	5
-----------------	---	---	---

%	40	60	100
---	----	----	-----

Total	21	7	28
-------	----	---	----

%	75	25	100
---	----	----	-----

Fishers exact test has a p value of 0.08 for this table.

If 0.1 is your predetermined level of significance/alpha (which you ought to state in the methods) then you can claim that you found this to be correlated. Otherwise you shouldn't make this claim.

We did not expect that any of our statistics would be significant because our N was small so we think we should just state that there is an association. We think this makes a nice pilot study and that a future larger survey could explore some of these items in more details.

Your statement in line 149:

"19/21 faculty that completed the credentialing were EM residency trained". This would be an impressive statistic if there were a 1:1 ratio of EM trained vs non EM trained physicians. But 23/31 respondents were EM trained so they should make up about 3/4 of the credentialing group (ie ~15/21). This statemtn seems to attempt to establish a link between EM residency training and completion of credentialing which is misleading. What is important in this case is showing that a higher proportion of EM trainees complete training and not that a higher proportion of those completing training are EM grads. Better might be "19/23 EM residency trained physicians completed the requirements compared with 2/5 of those that were not residency trained". This applies to the same statement in the abstract also.

This makes sense. The sentence was changed in the results section as well as in the abstract.

For ultrasound training in residency: there are 6 in this category, Are these the same 6 that were exempt due to training at XXXX? It is unclear. Is it an unfortunate coincidence that 6 faculty members did EM residency elsewhere with US training? If the 6 exempt people answered the survey were they just confused when asked if they had completed the credentialing? Thinking that the credentialing during residency was what was being asked about?

If we assume they were trained elsewhere, then I make the table to be:

	Completed	Not Completed
--	-----------	---------------

No US in res	15	7	22
--------------	----	---	----

US in Res	6	0	6
-----------	---	---	---

Total 21 7 28

Fisher's Exact = 0.288

Fisher's Exact 1 sided = 0.144

With this table it would be difficult to make the claim that residency US training is correlated with credentialing completion. As much as 100% is compelling 6/6 is still consistent with a range of proportions down to 60% with 95% confidence intervals.

To be safe, the statement needs to be modified to "Characteristics which may be correlated with the completion of credentialing"

The sentence was changed to characteristics which may be associated with the completion of credentialing.

For the result about the years of post grad training in the completed vs non-completed group (lines 151-156):

It is too enigmatic to state that "the confidence intervals overlap". As per the journal's statistical guidelines, please provide the confidence intervals, specifying the width (eg 95%) that led to the overlap, or a p value for the difference between means. For a point estimate/p-value, a T-test with unequal variance could be used or, if the Post-Grad year's distribution is skewed, you could use a non-parametric test like signed-rank/Mann-Whitney U test.

On a philosophical level though, you are simply providing a report on what happened in your own institute for a credentialing program and it is probably not necessary to make causal inferences for generalizable claims. If you want draw conclusions on whether people who complete or don't complete differ in some way then put this as an aim of the study. In this case you should preferably state a hypothesis in the Aims/Objectives, predefine your categories and questions and declare this process in the methods. Otherwise restrict yourself to statements like "The mean PG year was higher in the group that did not complete the credentialing ($p=x.x$)".

The sentence was changed to: "The mean postgraduate year (a surrogate measure for average number of years in practice) was higher in the group that did not complete the credentialing." We didn't bring up a p value since we are reporting on a small pilot study and didn't want to try and make the results statistically significant.

For your observational purposes and the tone of the article you could simply state the proportions/mean (+/- confidence intervals and ranges/std deviations) in a table with an additional column containing P-values for the relevant statistical test. The reader can then draw their own conclusions based on your work.

From line 163 the paragraph states throughout that 8 physicians did not complete the credentialing but the tables say 7. Please correct.

Yes, changed to 7.

Discussion

The discussion seems to spend most of its time dealing with the comparison between academic and non-academic settings. You could remove the heading "Limitations", otherwise it seems that the limitations constitute about 90% of the discussion. But your points seem valid and may be insightful. Discuss your results before going into the limitations in great detail.

The heading limitations was removed.

The conclusion does not actually offer a conclusion; it just lists what you did. The previous paragraph and bullet list might make a better conclusion and you could somehow combine this with your suggested research list.

The conclusion was deleted the bulleted list and list of questions for future research were made into the conclusion.