

Subject: BMJ - Decision on Manuscript ID BMJ.2015.027246

Body: 14-Jul-2015

Dear Dr. Elfar

Manuscript ID BMJ.2015.027246 entitled "Shorter length of stay is associated with decreased early mortality after hip fracture: a total cohort study in the United States"

Please excuse the delay in my report from the manuscript meeting. I only returned to my office after holiday today.

Thank you for sending us this paper, which we were pleased to have the chance to consider, and enjoyed reading. We recognise its potential importance and relevance to general medical readers, but I am afraid that we have not yet been able to reach a final decision on it. This is because several important aspects of the work still need clarifying.

We hope very much that you will be willing and able to revise your paper as explained below in the report from the manuscript meeting, so that we will be in a better position to understand your study and decide whether the BMJ is the right journal for it. Looking forward to hearing from you again and, we hope, to reaching a decision.

Deadline: Your revised manuscript should be submitted within 6 to 8 weeks

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You will be unable to make your revisions on the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer.

Once the revised manuscript is prepared, you can upload it and submit it through your Author Center. When submitting your revised manuscript, you will be able to respond to the comments made by the reviewer(s) and Committee in the space provided. You can use this space to document any changes you make to the original manuscript and to explain your responses. In order to expedite the processing of the revised manuscript, please be as specific as possible in your response to the reviewer(s).

IMPORTANT: Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Many thanks again. We look forward to seeing your revised article within 6 to 8 weeks.

Yours sincerely

Georg Roeggla
groggla@bmj.com

****Report from the BMJ's manuscript committee meeting****

These comments are an attempt to summarise the discussions at the manuscript meeting. They are not an exact transcript.

Elizabeth Loder (Chair), Rafael Perera (Statistics advisor), Rebecca Burch, Rubin Minhas, Alison Tonks, Tiago Villanueva, Wim Weber.

Decision: Ask for revision

The committee was interested in the topic of your research. The following concerns were mentioned:

- The committee shared the reviewers concerns.
- Many (most?) patients are discharged not home but to rehab facilities and SNFs. How is this accounted for?
- The authors of the Swedish paper (BMJ 2015) undertook a sensitivity analysis that was flagged up by an incisive rapid response, and we don't see such a sensitivity analysis here (it was to explore the possibility of survivorship bias and the time frame adjustment by moving the goal posts of early to later discharge)
- We now are left confused as to how different studies in different regions are throwing up different results and some better elaboration, as the reviewers suggest, would be very helpful
- This is a nice illustration that different health care systems are hard to compare.

First and foremost, please revise your paper to respond to all of the comments by the reviewers. Their reports are available below. Please also respond to the additional comments by the committee.

IMPORTANT

When you revise and return your manuscript, please take note of all the following points. Even if an item, such as a competing interests statement, was present and correct in the original draft of your paper, please check that it has not slipped out during revision.

a. In your response to the reviewers and committee please provide, point by point, your replies to the comments made by the reviewers and the editors, and please explain how you have dealt with them in the paper. It may not be possible to respond in detail to all these points in the paper itself, so please do so in the box provided

b. If your article is accepted it will then be edited, proofed, and - after your approval - published on bmj.com with open access. This open access Online First article will not be a pre-print. It will represent the full, citable, publication of that article. The citation will be year, volume, elocator (a unique identifier for that article): eg BMJ 2008;337:a145 — and this is what will appear immediately in Medline, PubMed, and other bibliographical indexes. We will give this citation in print and online, and you will need to use it when you cite your article.

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Please include the items below in the revised manuscript to comply with BMJ style:

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* ID of ethics committee approval and name of the ethics committee/IRB; or a statement that approval was not required (see <http://resources.bmj.com/bmj/authors/editorial-policies/guidelines>)

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* for a clinical trial, the trial registration number and name of register – in the last line of the structured abstract

* for any other registered study (eg a systematic review), the registration number and name of register – in the last line of the structured abstract

* a data sharing statement declaring what further information and data you are willing to make available. Suggested wording: "Data sharing: technical appendix, statistical code, and dataset are available at this repository or website OR from the corresponding author at ". If there are no such further data available, please use this wording: "Data sharing: no additional data available"

* please write the discussion section of your paper in a structured way, to minimise the risk of careful explanation giving way to polemic.

Please follow this structure:

* statement of principal findings of the study

* strengths and weaknesses of the study

* strengths and weaknesses in relation to other studies, discussing important differences in results and what your study adds. Whenever possible please discuss your study in the light of relevant systematic reviews and meta-analyses (eg Cochrane reviews)

* meaning of the study: possible explanations and implications for clinicians and policymakers and other researchers; how your study could promote better decisions

* unanswered questions and future research

* please note, too, that the article's introduction should cover no more than three paragraphs, focusing on the research question and your reasons for asking it now

* What this paper adds/what is already known box (as described at <http://resources.bmj.com/bmj/authors/types-of-article/research>)

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* a statement describing the role of the study sponsor(s), if any, in study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the article for publication

* assurance, in the cover letter, that a clinical trial funded by a pharmaceutical or other commercial company follows the guidelines on good publication practice (see <http://resources.bmj.com/bmj/authors/article-submission/article-requirements>)

* inclusion in the list of contributors the name(s) any professional medical writer(s), specifying in the formal funding statement for the article who paid the writer. Writers and authors must have access to relevant data while writing articles.

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* summary statistics to clarify your message

We do want your piece to be easy to read, but also want it to be as scientifically accurate as possible. Please include in the results section of your structured abstract (and, of course, in the article's results section) the following terms, as appropriate:

For a clinical trial:

- Absolute event rates among experimental and control groups
- RRR (relative risk reduction)
- NNT or NNH (number needed to treat or harm) and its 95% confidence interval (or, if the trial is of a public health intervention, number helped per 1000 or 100,000)

For a cohort study:

- Absolute event rates over time (eg 10 years) among exposed and non-exposed groups
- RRR (relative risk reduction)

For a case control study:

- OR (odds ratio) for strength of association between exposure and outcome

For a study of a diagnostic test:

- Sensitivity and specificity
- PPV and NPV (positive and negative predictive values)

For research articles

As well as submitting your revised manuscript, we also require a copy of the manuscript with changes highlighted. Please upload this file with file designation 'Revised Manuscript Marked copy'.

REFEREES COMMENTS

Reviewer: 1

Recommendation:

Comments:

Reviewer's comments

Based on a recent Swedish study that evaluated the association between length of stay (LOS) and risk of death within 30 days of discharge after a hip fracture, the authors evaluated these associations in United States using population-based registry data from New York Statewide Planning and Research Cooperative System (SPARCS) from 2010-2011. In contrast to the Swedish data, the authors found that longer LOS was associated with an increased risk of death within 30 days of discharge.

In general this is an interesting study that may indicate different effects of shorter LOS in Sweden and the US, perhaps due to different health care systems in Europe and the US.

Comments:

1. It would be necessary to evaluate these results in more detail. In the present cohort LOS was reduced to more than half (from 12.9 days-5.6 days) during the years of investigation. Therefore, I encourage the authors to evaluate whether the association between LOS and risk of death is similar during the years of follow up. Data for all years of follow up would be informative, using regression models and presenting both unadjusted and adjusted associations. In addition, any interactions between LOS and the years of follow up, with respect to death after discharge is warranted.

2. The SPARCS database would need some better description. Especially, the authors should describe the accuracy, sensitivity and specificity of the diagnosis captured in this database with references. To give some examples, from Table 1 only about 5% of the patients had dementia and about 3% had cancer at diagnosis. Compared to hip fracture cohorts in the US or Europe this is extremely low, and is likely resulting in residual confounding. Could the authors also gather comorbidities from other sources?

3. In the Discussion the authors mention that "care in New York State varies with location, and socioeconomic factors,". Yet, no estimate of socio-economic situation is presented. This would be of high interest, and the results should be adjusted for this factor if available. Also, information would be of value describing the different hospitals in this area. Are there important differences and how many are there? Are all hospitals in this area registered in the SPARCS database, or is there a selection of patients that could explain the very low prevalence of comorbidities?

4. Given the low prevalence of comorbidities it would also be of value to investigate whether the results are similar according to subgroups. Given the number of hip fractures this seems feasibly from a power perspective.

5. The risk of death should decrease with increasing follow up time. This will also influence the risk of death for those discharged early. Therefore, additional analysis is of value taking this risk into account, this should likely strengthen the associations found.

6. The Discussion needs more depth. There are several other studies that have investigated the association between LOS and risk of death, both in hip fracture patients and other cohorts.

7. Covariates are usually evaluated towards the exposure not the outcome, although this will likely not affect the conclusions. I can see the value also of the present presentation.

8. As mentioned above the risk of death is decreasing with increasing death after a hip fracture. This may well also affect the proportional hazard assumption. A description how this assumption was tested, and not violated should be added to the manuscript.

9. It would be of value if the authors can present causes of death. For those that die within 30 days of surgery, the death should usually be regarded as influenced by surgery.

Additional Questions:

Please enter your name: Peter Nordström

Job Title: Professor

Institution: Geriatric Medicine

Reimbursement for attending a symposium?: No

A fee for speaking?: No

A fee for organising education?: No

Funds for research?: Yes

Funds for a member of staff?: Yes

Fees for consulting?: Yes

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Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this paper?: No

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Reviewer: 2

Recommendation:

Comments:

The article by Nikkel and colleagues considers the association between LOS and mortality among patients with hip fracture in a New York, statewide population. The article is motivated by recent work from Sweden, which suggests that longer stays are associated with lower mortality. Using a statewide discharge data set, Nikkel et al. regress mortality on LOS categories and find that longer stays are associated with higher mortality, the opposite of the Swedish data. Overall, the analysis is sound and the paper is well written and easy to follow.

I have the following suggestions:

Major Issues

The authors argue that differences between health care systems between the US and Sweden could account for the difference in effect of LOS on mortality. But the specific differences are not spelled out. What differences could cause longer LOS to lower mortality in Sweden but increase mortality in the US? For example, in the US there is pressure for hospitals to transfer patients to rehab hospitals and SNFs. If US hospitals respond to these incentives then they would have a lower LOS on average, and a lower mortality since the transferring institutions would receive "credit" for the mortality. If Swedish hospitals do not have the same pressure as a result of a publicly financed system, then could this explain the difference between the countries? Are rehab and SNFs used in Sweden the way they are in the US? If this is the case, then to really have comparable results you would need to link inpatient admissions to their step down admissions. It would also imply that the LOSes reported in the two analysis (Sweden and New York) are really different measures. Are there other explanations for the differences in your results?

For much of the paper the authors are careful about not inferring causality between LOS and mortality. But there are places where this is implied. For example, page 10, line 1, "LOS did not influence mortality"; page 11, line 1, "altering LOS influence mortality rates"; line 23 "influences on mortality". I would recommend that you maintain the language of "association" rather than "influence" or other words that suggest that LOS is causing the mortality effect. Unless you can explain how LOS would "cause" mortality rates, I think a more likely explanation for your finding is that there is some other (unobserved or unmeasured) variable that is associated with both LOS and mortality that is the driving factor here.

The last sentence of the paper makes a leap from New York data to the US population. I would recommend that you not try to generalize, and that you limit your inferences to New York since it is likely that other states and the average for the US look different from New York.

Minor Issues

Abstract, Objective. Consider saying "determine whether..." rather than "determine if...".

Page 10, line 10. Consider revising the phrase "...and this trend was dominant in the overall cohort..." I cannot tell what you mean.

Additional Questions:

Please enter your name: Christopher S. Hollenbeak

Job Title: Professor

Institution: Penn State College of Medicine

Reimbursement for attending a symposium?: No

A fee for speaking?: No

A fee for organising education?: No

Funds for research?: No

Funds for a member of staff?: No

Fees for consulting?: No

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Reviewer: 3

Recommendation:

Comments:

REviewed: My recommendation is to Accept for publication, after revisions noted below.

This is a very important paper examining a large U.S. (in this case, New York State) based population results of hip fracture length of stay effect on mortality, with comparison that to a European (in this case Sweden) hip fracture length of stay study results.

That said, the authors should emphasize, in addition to their conclusions, one important takeaway point: that different health systems in varying geographic locations (i.e. Europe v. Asia v. North America. etc.) can have a profound effect on how patients fare after a hip fracture, therefore conclusions by the reader of these study results from these locations should take these differences into account. In this case, results from a large Swedish population cannot be generalized to a US population, and vice versa.

In regards to the above, one question for the author's is: Have you looked at similar studies from other countries (i.e. Britain, Germany, Japan, etc) to see if similar discrepancies also exist when compared to the U.S. New York State population you studied?

And Also: Have you considered looking at not just the New York State population, but other states in the U.S. to see how they have compared to each other?

For Page 6, Line 21: You mentioned that "healthcare systems in Europe and the United States differ in both LOS and usual discharge destination." Can you provide more detail as to how they exactly differ?

And similarly for Page 11, line 56: You mention that "interpretation of their results would require knowledge of the average time to surgery for Swedish hip fracture patients." Have you considered contacting the author's of that Swedish study to see if they could provide that information? Having that information would make for a stronger comparison difference that your paper suggests exists between US and European healthcare systems.

Additional Questions:

Please enter your name: Edward J. Fox

Job Title: Physician

Institution: Penn State - Hershey Medical Center

Reimbursement for attending a symposium?: No

A fee for speaking?: No

A fee for organising education?: No

Funds for research?: No

Funds for a member of staff?: No

Fees for consulting?: No

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