Reviewer’s report

Title: Post-Acute Care Referral in United States of America: A Multiregional Study of Factors Associated with Referral Destination in a Cohort of Patients with Coronary Artery Bypass Graft or Valve Replacement

Version: 1 Date: 27 Aug 2019

Reviewer: Reviewer 3

Reviewer's report:

"PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses one or several testable research questions? (Brief or other article types: is there a clear objective?)

No - there are minor issues

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?

No - there are minor issues

EXECUTION - Are the experiments and analyses performed with sufficient technical rigor to allow confidence in the results?

No - there are minor issues

STATISTICS - Is the use of statistics in the manuscript appropriate?

No - there are issues with the statistics in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?

No - there are minor issues
OVERALL MANUSCRIPT POTENTIAL - Has the author addressed your concerns sufficiently for you to now recommend the work as a technically sound contribution? If not, can further revisions be made to make the work technically sound?

Probably - with minor revisions

PEER REVIEWER COMMENTS:

GENERAL COMMENTS: RE-REVIEW OF THE MANUSCRIPT POST-ACUTE CARE REFERRAL: A COHORT STUDY OF PATIENTS WITH CORONARY ARTERY BYPASS GRAFT OR VALVE REPLACEMENT

Thanks for the opportunity to review this manuscript.

1. Authors have admitted the limitations of the study raised by previous reviewers and the need to re-write some sections of the manuscript.

2. The study design is not clear. This is not a cohort study. The use of the word 'cohort' is for descriptive convenience and not a study design.

3. Limitations of the study have been expanded to accommodate comments by previous reviewers.

4. Single level multinomial logistic analysis is accepted by this reviewer. Admittedly multi-level modelling and analysis would have provided more robust predictors. The analyses in this manuscript based on primary outcome of interest by the author's are acceptable. Authors also admitted that they have other publication/manuscript on the multi-level modelling. Other modelling not covered by the manuscript should be recommended for further studies by the authors.

5. Authors should organize the results and reports of primary variables of interest for easy comprehension into patient[eg gender, age, etc]-, provider/hospital[hospital size, teaching status, etc]- and regional[census division, etc]- related factors of PAC referral discharges.

6. Authors should interpret appropriately the results of the RR$[\text{RR}<1]$ that didn't cross nullity=1 [null hypotheses] based on percentages. The use of…… for example 0.4 and 0.7 times less likely……. are not accepted for this level of study and didn't convey meaningful statistical inference.
7. Although this reviewer accepted the use of 9-times……, etc in the results of RRs [RR$\gt; 1$] that are more than the nullity(1); reporting the results as …… HHC, 2.9 times to SNF, 1.8 times to IRF, and 2.1 times are not acceptable. Authors should approximate to whole number or more meaningfully percentages.

8. Authors should consider providing details in the methods section the referral discharges categorized as 'other locations' in the manuscript or deleting them. The miscellaneous locations designated 'other locations' may be of interest to some readers who would be interested to know 'what and what' constitute 'other locations'. Readers should not be kept in suspense.

9. Titles of some tables have to be modified to reflect the contents of the tables.

11. What were the 29 variables the authors used in multinomial analysis.

PLEASE READ……. Multinomial logistic regression was used to identify associations of 29 variables comprising patient characteristics, hospital profiles, and patient conditions with PAC referral at discharge………

12. Conclusion is verbose. This should be recast to reflect the significant findings of the study. Considering apriori set clear objectives.

SPECIFIC COMMENTS

TITLE SECTION

1. The title should be recast to reflect the contents of the manuscript and also minimize limitations of the study.

2. From the content of the manuscript, authors studied PAC referral destinations and patient-, hospital/provider and regional-related factors of interest. This should be reflected in the title in order to guide the scientific community appropriately.

3. The study design is not clear. This is not a cohort study. The use of the word 'cohort' is for descriptive or thematic convenience and not a study design. This is a record review.

PLEASE READ THIS…. 
Data was extracted from the Cerner Health Facts data warehouse, which was shared by the Oklahoma State University Center for Health System Innovation (OSU-CHSI). Cerner Health Facts data warehouse is a Health Insurance Portability and Accountability Act (HIPAA) compliant, geocoded data warehouse containing comprehensive clinical records related to pharmacy, laboratory, admission, and billing collected from participating clinical facilities starting from 2000.

4. Include site of the study for epidemiological completeness

SUGGESTED TITLE

POST-ACUTE CARE REFERRAL IN UNITED STATES OF AMERICA: A MULTIREGIONAL STUDY OF FACTORS ASSOCIATED WITH REFERRAL DESTINATIONS IN A COHORT OF PATIENTS WITH CORONARY ARTERY BYPASS GRAFT OR VALVE REPLACEMENT

ABSTRACT SECTION:

1. Write Abstract section under Background; Aim or Objective(s); Methods; Results; Conclusion, keywords.

2. Background: Accepted

3. Aim or Objective[s]: Re-cast the aim/objective(s) to reflect the suggested title.

NB- There is a difference between aim and objectives of a study. Use aim or objectives appropriately based on the recommended pattern by the journal of submission.
4. Methods. Re-write this section in other to focus the study appropriately. Re-write to reflect Study design, study subjects, study period, sampling and then methods.

5. Results:

i. Start result section with age and sex distribution and any other relevant bio-demographic determinants of referral destinations.

ii. PLEASE RECHECK THIS STATISTICS: Total of referral destination = 100.1%

\[ H+HHC+SNF+IRF+LTCH+OTHER LOCATIONS = 41+36.8+12.1+8.2+1.2+0.8 = 100.1 \]

iii. RECAST THIS SENTENCE BELOW. THE RESULTS OF THE LOGISTIC REGRESSION HAVE TWO OUTCOMES. KINDLY INTERPRETE THE TWO RESULTS OF LOGISTIC REGRESSION APPROPRIATELY BASED ON NULL HYPOTHESIS FOR RR$s$. PROVIDE FOR EACH PREDICTOR FACTOR [RR$s$; AOR; 95% CI; P-value=]

PLEASE READ THIS

Highly significant factors (p-values <0.001) were census division, hospital size, teaching hospital status, gender, age, marital status, length of stay, and Charlson comorbidity index.

--It is not clear authors meant by HIGHLY significant……

----Authors should organize the results and reports of primary variables of interest for easy comprehension into patient[eg gender, age, etc]-, provider/hospital[hospital size, teaching status, etc]- and regional[census division, etc]- related factors of PAC referral discharges.

----Authors should interpret appropriately the results of the RR$s$[RR<$\lt$1] that didn't cross nullity=1 [null hypotheses] based on percentages. The use of…… for example 0.4 and 0.7 times less likely…… are not accepted for this level of study and didn't convey meaningful statistical inference.
Although this reviewer accepted the use of 9-times……., etc in the results of RRs[R &gt; 1] that are more than the nullity(1); reporting the results as for examples ……… HHC, 2.9 times to SNF, 1.8 times to IRF, and 2.1 times are not acceptable. Authors should approximate to whole number or more meaningfully percentages.

6. Conclusion

i. Conclusion is verbose and is replete with reporting of results

ii. Please focus conclusion thematically to reflect the statistically significant results of the study considering the aim/objectives of the study.

KEYWORDS:

i. Provided keywords are verbose.

ii. Authors should focus keywords on the pertinent study variables

iii. Delete 'Multinomial logistic regression'. It is inappropriate.

iv. Re-cast based on journal specification or use MeSH guideline.

METHODS

1. Authors should justify why was discharge to out-patient care excluded and regarded as inappropriate location?

PLEASE READ THIS…..

………..Patients who expired (n= 185), left against medical advice (LMA) or discharged for outpatient service (considered as inappropriate discharge location) were excluded……..

2. Authors should justify why procedures performed after discharge date considered as incoherent data and excluded from the study?
Patients who had procedures performed before the admission date or after the discharge date (considered as incoherent data) were also excluded.

3. What were the 29 variables you studied.

Multinomial logistic regression was used to identify associations of 29 variables comprising patient characteristics, hospital profiles, and patient conditions with PAC referral at discharge.

TABLE 1:

1. The title is inappropriate. Please recast the title to reflect the contents of the table. The title contains test statistics (Chi-square test)

PLEASE READ FROM THE TABLE

p-values are generated from bivariate chi-square test)

2. Delete 'predictors' from the title. It is inappropriate.
TABLE 2:

1. The title is inappropriate. Please recast the title to reflect the contents of the table.
2. The notations are confusing. Kindly use asterisks[*; **; ***] to denote significant factors
3. There is no information on 'home' and 'other location' discharge destinations
4. Although this reviewer accepted the use of 9-times……,etc in the results of RRs[RR>1] that are more than the nullity(1); reporting the results as for examples …… HHC, 2.9 times to SNF, 1.8 times to IRF, and 2.1 times are not acceptable. Authors should approximate to whole number or more meaningfully percentages. PROVIDE APPROPRIATE PRIMARY REPORTING OF THE RESULTS IN THE RESULTS SECTION.

For example

<table>
<thead>
<tr>
<th>Variables</th>
<th>HHC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Census Division: East South Central (Reference)</td>
<td></td>
</tr>
<tr>
<td>East North Central</td>
<td>1.52 (1.33, 1.74)</td>
</tr>
</tbody>
</table>

ETC, ETC, ETC [See other variables with RR>1]

4. Authors should interpret appropriately the results of the RRs[RR<1] that didn't cross nullity=1 [null hypotheses] based on percentages. The use of…… for example 0.4 and 0.7 times less likely…… are not accepted for this level of study and didn't convey meaningful statistical inference. PROVIDE APPROPRIATE PRIMARY REPORTING OF THE RESULTS IN THE RESULT SECTION.

For example
Variables HHC

Census Division: East South Central (Reference)

Mountain 0.26 (0.15, 0.46)

ETC, ETC, ETC [See other variables with RR<1]

5. Review this result with superscript c and other significant factors with inappropriately superscripted c . . . .[ c: p &gt; 0.05]

Posthemorrhagic Anemia 0.72c (0.64, 0.8)

FIGURE 2

1. Detail out what discharge destination classified as 'others'

FIGURE 4

1. Why was 'home' and 'other location' discharge destination not represented?
1. Why was 'home' and 'other location' discharge destination not represented?

RECOMMENDATION

MAJOR REVISION

Thank you

REQUESTED REVISIONS:

TITLE, ABSTRACTS, METHODS, STATISTICS"

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No
Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

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3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

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5. Do you have any other financial competing interests?

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