Reviewer's report

Title: Impact of a hospice rapid response service on preferred place of death, and costs: a stepped wedge randomised trial

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Reviewer: Mona Kanaan

Reviewer's report:

This article addresses the impact of a hospice rapid response service on preferred place of death, and costs using a stepped wedge randomised trial approach. This is an interesting question; however, there are a number of issues that need addressing.

Major Compulsory Revisions

- The authors use a stepped wedge design approach; however, Figure 1 suggests that there was no control data for Area 1. If it is the case then the authors need to reflect this in the title of the paper as using a variant of the stepped wedge design as strictly speaking a stepped wedge design would have control data for all participating centres.
  
  o If currently there is no control data for Area 1, would it be possible to go back and collect these data for all the areas prior to Month 0 (I am assuming this would mean looking at 6 month prior to the implementation of the service in Area 1)?

- The authors seem to have used an on-treatment analysis given that they are comparing users versus non-users rather than control periods to treatment periods. An intention-to-treat analysis was expected in this case as there are issues with regard to using an on-treatment analysis as the effects observed are most probably due to user/non-user differences instead of the impact of the service itself.

- The method of analysis should have accounted for the clustering of observations at least by area level (there is also potential for clustering by place of care such as hospice and hospital) and the period of observation. Not accounting for this potential clustering might lead to underestimated standard errors. See Hussey and Hughes (2007) for appropriate methods of analysing data from stepped-wedged clustered randomised controlled trials. All the analyses reported in the methods and results should account for the clustering.

- The flow diagram of participants should also show details by period.

- The authors state on Line 130 that they have used stepwise logistic regression, why was this approach used and what rules were employed for the stepwise regression.
  
  o Some diagnostics regarding the goodness-of-fit of the model were expected.
- Line 120, what is the rational of grouping the number of days as such? Why not use the variable as it is and report means and standard deviations as any categorisation leads to loss-of-information.

- Care should be taken with regard to interpreting the coefficients of initial PPD on Lines 215 to 217 as implicit in the way the variables presented in Table 4 is that the reference group is hospice + hospital + other. The re-categorisation of this variable should have been discussed in the main text and not just as a note in Table 4.

- In Table 4 the “days in study” seem to have been included as a continuous variable. Is this the original variable or is it the grouped variable?

- I was expecting to see the type of illness included as one of the explanatory variables.

- Also, was any sample size calculation carried prior to the study initiation? If so, this needs to be reported.

Minor Essential Revisions

- Line 37 delete the first occurrence of “were included”
- Line 71 first occurrence of “and” should be “an”
- when was "age" measured at death or at recruitment.
- Lines 127 and 128 should specify the groups being compared.
- In various places when claiming “no differences” it is advisable to replace with “no evidence of differences” as “absence of evidence is not evidence of absence”

Discretionary Revisions

In Table 3, the age summaries are better placed at the end of the table as the main data presented are counts and percentages.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests