**Reviewer's report**

**Title:** Preventing delirium among hospitalized older hip fracture patients: applying evidence to routine clinical practice

**Version:** 1  **Date:** 19 May 2010

**Reviewer:** Graeme MacLennan

**Reviewer's report:**

A two centre interrupted time series evaluation of an intervention to reduce delirium in elderly patients with hip fracture. The study findings are hampered by a small sample size which limit the evidence from this study alone, however with improved reporting this study could contribute to wider evidence base of such interventions. Two useful papers to potentially improve reporting of such research are the SQUIRE guidelines (available at www.squire-statement.org) and Ramsay et al 2003 paper on ITS designs in behaviour change studies, (International Journal of Technology Assessment in Health Care, 19:4 (2003), 613–623).

The most interesting aspect is the section on the focus groups, is there enough information not reported here to be written up fully in another paper?

**Major Compulsory**

Given the sample size, event rate and number of time points (20 pre and 20 post) it would be difficult to fit an appropriate time series model (this is possible why the DW test does not indicate an serial correlation). A graph of the primary outcome pre and post intervention would be useful to convey this to the readers. A more appropriate analysis strategy may have been to use the monthly rates, but this would have reduced the times points to only 5 pre and post making formal ITS analysis difficult. In light of this a simple pre post comparison is made. However, the study was undertaken in two hospitals and this is ignored in the analysis (although some attempt is made to address this when unpicking the potential success in one hospital and not the other). Given that there are only two hospitals, a full blown cluster level ITS is not possible, but a dummy variable for hospital in a logistic regression would adjust for this (as I think may have been done, given the report of study by phase interaction effect?). If this has been done already, then be good to see that in the methods section, if not, then report that analysis as the main analysis of primary outcome.

If it is felt that hospital is important perhaps break table 1 down by hospital, or at least report the primary outcome in full by hospital (rather than readers having to calculate for themselves).

The statistical methods are not described in enough detail.

There is no evidence of a planned sample size, or indication of what an
appropriate effect size would be, this needs discussed.

It is usual practice to present an estimate of the change in level and change in slope with confidence intervals in an appropriately analysed ITS study (see Ramsay et al 2003). Even though a simple pre post difference is used as an analysis strategy, an effect size and confidence intervals are required in addition to reporting a p value.

The conclusions state that intervention was ineffective but there is no definition of ‘effective’ stated. So, what would be deemed a successful intervention in this local setting, and perhaps in a wider context of preventing delirium? (Also it is correct that there was no evidence of effectiveness rather than evidence of ineffectiveness, this ties in with presenting confidence intervals).

Minor Essential

Include the primary outcome in table 1. Include estimates of effect and CI where possible and indicate in the table what tests the p values from (perhaps in a footnote).

State n/N at all times, and report percentages to the closest percent.

Start and end dates of the pre intervention and post intervention phase.

Read Ramsay at al and consider the quality criteria that they collected applied to this report and fill in any gaps.

Discretionary

Perhaps a table of the characteristics of the cohort pre and post?

A note on anything seasonal that might have happened (or not), the study doesn’t run for a full year, so it could be that pre was in winter, more falls, so on, it doesn’t look like it from table 1, and maybe just giving dates would inform readers.

**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.