Reviewer's report

Title: Dementia as a determinant of health and social service use in the last two years of life 1996-2003

Version: 1 Date: 1 December 2010

Reviewer: Susan Roepke

Reviewer's report:

- Major Compulsory Revisions

The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation.

This population-based study investigated the use of hospital care, long-term care, and home care among people in Finland with and without dementia in the last two years of life. The authors clearly specified study aims to determine a) how health and social service use in the last two years of life differed between people with and without dementia, and b) how health and social service use changed between 1996-2003. Results indicated that those with dementia were more likely to use long-term care compared to those without dementia. Hospital use and home care were less likely among those with dementia.

This manuscript has several strengths including the use of a thorough population-based sample of decedents in Finland. The authors also conducted a thorough investigation of how individuals with dementia and without dementia differed on health and social service use. The results from these analyses are important in guiding how modifications can be made in these systems to optimally serve the needs of these groups. There are, however, some issues in this manuscript that need to be addressed before publication. In general, there are some clarifications that need to be made in the methods section that are described below (e.g., how variables were calculated and defined). Also, the Discussion/Conclusions sections should specifically outline a) the significance of these findings and how they might inform health and social services modifications to better serve older adults in Finland, and b) the specific future research that should be done (that the authors allude to in the Conclusions).

Specific Comments:

1. The authors clearly specify study questions that were the focus for this analysis. However, there were no clear hypotheses specified about how service use in individuals with dementia might differ from individuals without dementia or about how these would change over time.

2. Please provide the rationale for why you chose to include all individuals who died in 1998, 2002, and 2003, compared to a 40% random sample of individuals
who died between 1999-2001. Also, could you explain why individuals who died in 1998, 2002, and 2003 were included if they died #70 years old, but those who died between 1999-2001 were included if they died #65 years old?

3. What is the rationale for analyzing use of university hospital, general hospital, and inpatient ward of a health center separately?

4. Please clarify if number of days in care pertains to a single hospital visit or the sum of the days in care over potential multiple visits. It seems as if in your logistic regressions, you used the binary outcomes of health/social service use (i.e., used never or used at least once). Was there data available in regards to the number of hospital visits made with shorter lengths of stay? It would be interesting to perform analyses using number of hospital visits made in the 2-year period before death as a study outcome. Your negative binomial regression models seem to convey this, but it wasn’t exactly clear how days in care was defined.

5. In the Conclusions section, it is stated that “improvements and new alternatives in care should be developed.” Given the results you report in your manuscript, can you provide specific examples of the types of changes that could be implemented or the specific research that could be conducted?

- Minor Essential Revisions

The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.

1. The first sentence in your Conclusions section states that you compared service use in a “whole old population.” This was not the case for decedents in 1999-2001 (given that you used a 40% random sample for these).

2. Were individuals with Parkinson’s dementia included in the dementia category? If so, was Parkinson’s disease included as a comorbidity for these individuals?

3. Please clarify in your Materials and Methods section (under “Comorbidity”) how you calculated your comorbidity variables. In the last sentence, you state, “From these diagnostic groups we created two comorbidity variables, first by formulating a dummy variable for each of the ten diagnostic groups, and second by calculating the number of diagnoses other than dementia.” Perhaps I’m misunderstanding this statement, but it sounds like you actually calculated 11 variables, 10 dummy-coded variables for each diagnosis and 1 variable with the total number of comorbid diagnoses.

- Discretionary Revisions

These are recommendations for improvement which the author can choose to ignore. For example clarifications, data that would be useful but not essential.

1. If possible, can you include more recent studies in the fourth paragraph of your
background section? Your statements would be strengthened if you could find more updated studies for citations #17-20, if they are available.

-Specific Comments regarding Written English:

Overall, this manuscript reads clearly. However, the readability of this manuscript would be significantly improved if the authors would seek some help with the written English. Some specific examples are as follows:

1. The second sentence in the third paragraph of the Background section (Page 3: “The effect of comorbid conditions seems to vary between the service types…”) is very long and is somewhat confusing.

2. The use of past and present tense is inconsistent throughout the manuscript. Please use the past tense. For example, the study questions in the last paragraph of your Background section (Page 5) use both past and present tense.

3. In “The Sample” section, the third sentence (Page 5: “For other years all decedents, but for 1999-2001 only those who belonged to a…”) could be reworked.

4. The first sentence in the “Comorbidity” section (Page 6: “To adjusting for the effect of other diseases…”) needs to be reworked.

5. In the last paragraph of the Results section, the first sentence (Page 13: “People with dementia stay in long-term care longer periods than do people without it, and therefore their likelihood to use other services is smaller”) needs to be reworked.

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

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests