Reviewer's report

Title: Brazilian Study in Multiple Sclerosis: a cross-sectional study to assess burden of disease and unmet needs

Version: 2 Date: 24 June 2015

Reviewer: Amin Torabipour

Reviewer's report:

# Major Compulsory Revision:
1. Introduction section, Authors should provide a relevant and clear background of epidemiological and economic aspects of disease in Brazil. I would recommend a brief explanation of the Brazilian health care system (how does the Brazilian healthcare system works? Do patients pay everything out of pocket? Does their plan cover anything? The following article provides a good introduction:

-Höer et al. Multiple sclerosis in Germany: data analysis of administrative prevalence and healthcare delivery in the statutory health system. BMC Health Services Research 2014 14:381.

2. In method section, it is necessary to define epidemiological approach (prevalence or incidence), type of costs, and study perspective. Subsequently, resource consumption data and unit costs can be gathered, and the results presented and methodically discussed, in conjunction with sensitivity analysis to test their robustness. For better interpretation of unit costs, it is need to use a scientific conceptual model of MS cost categories in order to cost analysis. Please see this reference:


3. Please write the method of generalization of costs (inpatients costs, hospital costs and others).

4. If the authors have studied some demographic variables including residence place (urban or rural), medical insurance, and marital status of patients, please provide the results in table1 because these factors can affect the costs and resources consumption.

5. Why authors have used from parametric and non-parametric tests (ANOVA and Kruskal-Wallis) Simultaneously?

# Minor Essential Revision:

Title:
- The title is not informative about the contents of the paper. It should be noted that the cost of illness study, not necessarily the burden of disease study. Hence, I recommend the following title:

1- direct and indirect costs of Multiple Sclerosis in Brazil
2- direct and indirect costs analysis of Multiple Sclerosis patients in Brazil

Abstract:
The abstract should be understood without reading the manuscript and appropriately summarize the manuscript.

- This study has been performed based on the patients perspective, hence, the objective of study should be revised in abstract, lines 49-50.

- The method's section needs to be completed. The number of patients and time of study should be added.

- In results' section, lines 58-59, the authors stated there was significant relationship between EDSS and costs (p=0.001). However, in the main text, the author reported that there was significant relationship between EDSS and direct costs (P=0.012). The authors should state the exact rate of significant level both abstract section and main text.

- The conclusion's section should be stated based on the findings of this study. This study has been performed based on the patients' perspective, not according to the health system perspective.

Introduction:
Reviewer suggest the following comment to improve this section:

- In line 72: authors stated that 2.5 million people are living with MS. Whereas, These data are as to 2005 (approximately ten years ago). Hence, reviewer suggest following reference:

For example:


- It is need to be discussed the role of cost of illness study in the health policy making.

- line 76: please write the short sentence.

- The authors should provide a rationale for performing the study based on a new review literature. Please focus on the new and relevant literature.

- The introduction should be strengthened.
Methods:
- The time of study should be provided in method section.
- Lines 89-90: please clarify the number of patients and the sampling method.
- The authors should be explained the number of public and private centers separately.
- Line 108: the authors have mentioned that patients were asked about the costs of hospital stay. It would be better that hospital cost be computed based on the medical record of patients. Why didn't you use medical record to calculate hospital costs?
- In resources utilization section, lines 105-110: please mention the references to classify resources.
- Did you calculate the travel expenses as unit costs?
- In costs section, line 112: it is recommended that authors discuss the type of costs according to new references.
- In health-related quality of life section, lines 129: why didn't you use from World Health Organization-quality of life questionnaire?
- In line 135: please provide more details about conversion method of EQ-5D to a single index.
- In statistical analysis, please clarify the statistical distribution of the dependent variables (normal or non-normal distribution).

Results:
- Please show the disease modifying drugs in table 2 and 3 (such as interferon).
- In table 3, it is necessary to provide direct and indirect costs separately.
- Line 217: Change "meanwhile" to "however".

Discussions:
- Authors should revise better and more the current literature in the field. For example, a good study can be found here:
  - Casado V, Martínez Yélamos S, Martínez Yélamos A, Carmona O, Alonso L,
Romero L, et al. Direct and indirect costs of multiple sclerosis in Baix Llobregat (Catalonia, Spain), according to disability. BMC Health Serv Res 2006;6:143.
- Line 245: the word "annual costs" would be a better word choice than the phrase, "yearly costs."

Conclusion:
- Conclusion section isn't adequate and relevant.

References:
- Kindly provide the last accessed detail and check the formation of reference 14.

**Level of interest:** An article of importance in its field

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

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

**Declaration of competing interests:**

I declare that I have no competing interests' below