Reviewer's report

**Title:** Estimating lifetime economic burden of stroke according to the age of onset in South Korea: a cost of illness study

**Version:** 2  **Date:** 26 May 2011

**Reviewer:** Anne Magnus

**Reviewer's report:**

I think this is a well intentioned use of a rich statistical database to argue for prevention of stroke, but it presents the argument in a one sided manner, which is biased by the application of a single unquestioned methodology.

Some adjustments and definitions and explanations will assist the international reader appreciate the Korean health system as it applies to stroke care.

**Major compulsory revisions**

**Measurement of costs.**

Are all relevant costs included from the societal perspective which include more than the health sector and patient. Nursing home costs may be separate from acute hospitals. Carer costs outside hospital sector? Uninsured medical costs need to be defined to satisfy this query. Costs to business and government do include the consideration of appropriate productivity costs and welfare impacts (disability pensions) if there are any. Who cares for stroke victims that are unable to work, that do not stay in hospital?

**Measurement of health states and loss of productivity.**

Measurement of years of productive life lost needs expansion:-

Fatal stroke = loss of productive years to 65 from age at stroke

Non-fatal stroke = if serious and must retire early due to ongoing disability: loss of productive years from age of stroke: ie a serious stroke is the same as a fatal stroke. If not serious: the loss of productive years= absence from work due to medical visits, recuperation time post hospital and hospital time following stroke.

Ignoring the distribution of severity of stroke may cause distortions across the age groups and genders leading to either under or overestimation of the impact of stroke on years of life lost. Your simplified treatment requires justification.

**Valuation issues.**

Friction Cost and Human Capital generate very different results and both should always be presented as a sensitivity analysis. Which one is more appropriate depends on the research question and needs to be discussed as they measure different aspects of the same issue. Is this a societal perspective? If the unemployment rate is high then fatal stroke victims can be replaced within 3 months. If unemployment is low then it may take longer for a person to be
replaced possibly 6 months. New persons enter the workforce through ageing and immigration all the time.

Minor essential revisions

Why are there productivity costs due to morbidity past 65 when there are no productivity costs due to fatal strokes past 65 in Appendix tables 1 and 2.

“In calculating future costs, we did not allow for increases in healthcare costs (including from inflation) nor did we discount future costs to the present value, as these opposing effects were similar in magnitude and hence would have nullified one another.” This statement needs further justification and discussion. Were the rates of inflation in Korea only 3%, as is the discount rate preferred by Gold et al. If the inflation rate was higher, the conclusion is invalid. Needs a reference to support the claim.

Equity issue that should be addressed = that women and men have a differential economic impact of stroke, due to different general population life expectancies and differential work force participation rates and rates of pay within the work force. Currently the argument would support prevention of stroke in men primarily. Is this in accord with social values in Korea?

‘Looming economic calamity’ needs to be expressed more scientifically since the number of strokes in the young is still small, may be rising, but from a very low base and only across a small time period, and has been valued with an exaggerated valuation system not tested in sensitivity analysis with an alternative (Friction Cost)

Discretionary revisions

There are a number of isolated typographical errors that also need correction. Column headings in Appendix Tables need definition and explanation for the international audience.

Productivity losses need to be labelled and used consistently (lost to productivity?)

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

**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