Reviewer's report

Title: Secular trends in aortic aneurysm- and dissection-related mortality in the state of Sao Paulo, Brazil, 1985-2009: multiple-cause-of-death analysis

Version: 1 Date: 3 April 2012

Reviewer: Edward Choke

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Major Compulsory Revisions

1. This well written paper addresses the epidemiology of an important public health problem – aortic aneurysms and dissections. However, I believe it carries an important message that seems to have been missed by the authors. The objective and clinical perspective of this paper could be made even more pertinent by focussing on the epidemiology of aneurysms involving abdominal aorta (ie. only ICDs I71.3, I71.4, I71.5, I71.6, I71.8, and I71.9). The rise in incidence and mortality of abdominal aortic aneurysm (AAA) is outdated and historical, and this is in fact declining in some Western populations (UK, New Zealand, Australia and Sweden - Norman JVS 2011, Sandiford BJS 2011, Anjum, EJVES 2012, Choke Circulation 2012). This carries important implications for AAA screening which is currently being rolled out in many parts of the world. Looking at Figure 2, there is evidence that AAA mortality in Sao Paulo rose from 1985 and peaked at 2001-2, but from 2002 onwards it seems to have remained static (especially men). Could it be possible that AAA mortality in Brazil is lagging behind that of the other countries due to different rates of smoking cessation? Given the evidence from other countries, it is likely that the AAA mortality in Brazil will decline from 2010 onwards.

2. The statement “Few population-based mortality studies have been published in the world..” is not strictly true. There has been a recent spate of publications that evaluated contemporary incidence and mortality of abdominal aortic aneurysms (Norman JVS 2011, Sandiford BJS 2011, Anjum, EJVES 2012, Choke Circulation 2012).

Discretionary Revisions

1. Can the authors comment on the quality of the mortality data from SEADE in Brazil? Is there any external or internal validity of the database? There has been an article looking into the quality of cause of death statistics reported to WHO in which Brazil was classified as “medium to low quality” with 70-100% completeness of data (Mahapatra, Lancet 2007). The section on limitations is already well written but if the above is true, it should be acknowledged as another limitation.

Minor Essential Revision
1. Keep to one decimal point throughout – easier for the reader.
2. There are two Table 1s. Presumably the second Table 1 is meant to be Table 2.
3. Figure 2. It is difficult to differentiate between the purple and blue lines.
4. Please indicate p values.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.