Reviewer's report

Title: Mortality trends in Tonga: an assessment based on a synthesis of local data

Version: 1 Date: 21 November 2011

Reviewer: Cheng Huang

Reviewer's report:

This paper examined the mortality levels in Tonga through an assessment of available published information and data available from HIS, RHS, CR and other routine death reporting system in operation.

It was an interesting case study with successful applications of strategies proposed by previous studies focusing more on general discussion of methods for similar purposes, such as the one entitled “What can we conclude from death registration? Improved methods for evaluating completeness” (CM, et al. 2010, Plos Medicine).

The strength of this paper exists in 1) a thorough search of the published reports of mortality based on multiple resources in the studied regions; 2) a careful application and justification of methods for evaluating completeness of mortality registration, including Brass analysis, two-source analysis, and three-source capture-recapture analysis.

Acknowledging its clear potential for an excellent publishable paper, I would suggest the authors consider addressing the following issues (Discretionary Revisions):

First, a brief discussion should be carried out around the major methods employed in this study, such as Brass Balance and capture-recapture analysis. Although these methods have been correctly refereed in the current draft, readers may prefer to get a quick idea by reading the paper instead of consulting the papers cited, particularly for those who are not familiar with this field.

Second, as the authors indicated, the three-source analysis may work the best among the three because the Brass method is most sensitive to migration and small numbers, and two-source analysis is sensitive to dependence between different data registry practices, in which case, the authors should focus on the three-source capture-recapture method and results generated (the authors may consider presenting results from other methods for comparison in an appendix).

Third, the results should be examined or discussed more carefully; for example, the paper stated, “There were 3874 unique deaths recorded for Tonga between 2005 and 2009 (Table1), and 2435 deaths recorded between 2001 and 2004.” A natural question raised is whether the increase in number of death occurred because of an improvement of death reporting over time, or, alternatively, how is
this likely to be related to age structure of Tonga population or diseases pattern?

Finally, the authors may consider utilizing information from the two most recent censuses in Tonga for an additional gauge of completeness of report of death. For example, adjusting for the change of population size due to migration, the difference between \( P_x, x+5 \) in last census and the \( P_{x+10}, x+15 \) in the current census may indicate the real number of deaths occurred to the birth cohort during the past 10-year period. If this is not applicable, an explanation may be expected.

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

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

NO