Reviewer’s report

Title: Projected growth of the adult congenital heart disease population in the United States to 2050: an integrative systems modeling approach

Version: 2 Date: 14 August 2015

Reviewer: Russell Kirby

Reviewer’s report:

The authors received a number of comments from the four reviewers, and generally I feel that they have addressed them in satisfactory fashion. There are a few areas where the manuscript might still be improved.

Minor essential revisions

Reference 53 is a repeat of reference 12. Reference 56 instead of S the word 'System' should be spelled out. These issues suggest a careful review of all the references prior to finalizing the manuscript is in order.

In the abstract under results, the first sentence is unclear as to what age group the data refer. Since nowhere do the authors address an overall evidence of the prevalence of CHDs, the age group (most likely 20-64) should be added to this sentence.

The main worrisome issue for this reviewer lies in the fact that most birth defects surveillance programs identify an overall prevalence of CHDs in the range of 10/1000. Allowing for mortality but also counterbalanced with cases not diagnosed in the first year of life, this suggests a large discrepancy between the estimates reported in this paper, and what one might project carrying forward estimates of survival. However, this reviewer accepts the authors’ arguments given the more narrow definition of CHD prevalence used.

It would be helpful for the authors to mention the sensitivity analyses described in the response to reviewers, either in the results, or in discussing the limitations of their approach.

Also helpful would be a slightly more nuanced discussion of limitations and an indication that the estimates and their CIs most likely do underestimate the current and the projected prevalence of CHDs among adults in the US. In other words, this study adds to the knowledge concerning the prevalence of CHDs in adulthood, but that the authors anticipate that other researchers will use other approaches or refine those used here.

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

Quality of written English: Acceptable
Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I declare that I have no competing interests.