Reviewer’s report

Title: The United States and Canada as a coupled epidemiological system: an example from hepatitis A

Version: 3 Date: 26 November 2007

Reviewer: Kimberly Thompson

Reviewer’s report:

As I indicated previously, I like this paper and I feel it should be published. However, the authors have not addressed the mandatory comment that I made about the time axes on Figures 4-6. It is not acceptable to me (and I hope not to you) to have a meaningless time axis when presenting the results of a dynamic model. The authors need to change the axis so that it corresponds to REAL years (e.g., 1980 on since that is presumably what they are modeling) or years past some initial starting point. The explanation that they have provided only leaves me even more concerned that they are doing something inappropriate. What does t=120 years mean to you? I don't have time to rebuild their entire model to figure out what's going on. I believe that it's a good thing that they've now added the language that they've added to say: "We note that the choice of t=120 years is not epidemiologically or dynamically important and was chosen simply so that the prevalence before and after vaccination would be visible in Figure 4." This leads me to ask all kinds of questions, like what does it look like before t=120 and why can't the authors rescale and why aren't the authors questioning the assumption about the need for equilibrium? I don't believe that the population is necessarily in equilibrium, although I'm willing to give it to them that it's a good approach for their modeling. I also don't know what software the authors are using and I think that they should say something in the technical appendix about the simulation/numerical integration methods used if they don't identify a particular software. I would have been happy if they simply said that they ran their model to obtain the conditions of equilibrium and called this point t=0. Presumably it should correspond to the equilibrium that they viewed as relevant in terms of the actual calendar years (i.e., the relevant equilibrium for 1980). Then they should model the changes due to universal US vaccination and use a time scale that is related to the change or to a calendar year. Again, I like the paper, but the figures and insights are much less effective with meaningless time units and the authors really need to fix them. Does t=120 years mean anything to you? How should a policy maker interpret this? I would be happy to review it once they have addressed my comments on this point, but their response to my comments on this point (which I identified as mandatory) really don't address it in my opinion. I am only sending this to you, however, because if you are happy with their response and you think the time units on the
figures are satisfactory, then by all means you should feel free to ignore this note and take the paper. I’m not trying to be difficult, I just don’t think figures should have meaningless axes. Thanks for your consideration.