Reviewer's report

Title: Benchmarking surveillance systems: A software tool for creating simulated outbreaks

Version: Date: 28 February 2005

Reviewer: Alain-jacques valleron

Reviewer's report:

General
This is not really a "research" paper and for intended purpose and context it may be that it is understood although "These results (ital.added) were presented in part at the 2003 National Syndromic Surveillance Conference" seem to imply otherwise.

This is a simulation package that generates spatio temporal clusters with user-chosen parameters of timing (in days), location and distribution (limited now to random, linear and exponential). Location data use absolute coordinates of latitude and longitude and computer its own distances but for the illustrations an external GIS environment is used to generate a map on which to overlay the clusters.

It seems that it could be a useful tool to generate hypotheses, even in other contexts (say tracking the deeds of a serial killer). The presumed natural link to simulating outbreaks and detecting alarming changes over "baseline" is evoked but not elaborated upon. In this version, the paper can be more seen as a textbook example of a simulation using geometry and time series along with some simple (simplistic) assumptions (e.g. no provision for privileged axis of propagation such as transport infrastructure etc...).

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
If (as the title indicates) the idea is to provide a tool to epidemiologists in order to benchmark surveillance systems (more exactly: alert systems), the authors should provide a complete tool addressing at least one well specified epidemiological problem: for instance, they could show how they can use their program to evaluate the sensitivity or specificity of algorithms intended to detect an influenza epidemic. Or, how the program could be used to test statistical techniques for detecting clusters in the vicinity of an industrial facility. Or, how the program could help to evaluate algorithms of detection of a bioterrorist attack in various scenarios. In all of these examples the AEGIS-CCT could be certainly a good start, but in none of them it could—in its present form—be used as such to “benchmark” the corresponding appropriate surveillance systems.
To benchmark any surveillance system, it is necessary to simulate epidemics (or diseases occurrence in the case of environmental hazards) under different hypotheses, to apply the algorithms of detection, alert, etc, and then to evaluate the results. This implies that—at least—the simulation tool must allow the user to generate stereotyped epidemiological situations upon which he can compare his algorithms.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
The program is written in platform independent java which is fine. The paper however does not
trouble with giving instructions for using the programs as found on http://sourceforge.net/projects/chipcluster/ on the usual private platforms, i.e., Windows and Mac. In fact to get some idea of the interface, I tried to run them on my unix host and failed. Obviously I missed something and the limitation is all mine but it would not bide well for some even more naive but nevertheless interested researchers.

Discretionary Revisions (which the author can choose to ignore)

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**Statistical review:** No