Reviewer's report

Title: Modeling the containment of the accidental laboratory escape of potential pandemic pathogens

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Reviewer: Gerardo Chowell

Reviewer's report:

Authors have conducted a thorough modeling study of the accidental laboratory escape of a novel influenza virus via infection of laboratory workers and the likelihood of containing transmission under a range of control scenarios. For this purpose, authors employed a highly detailed transmission model which has been previously calibrated in the context of 2009 A/H1N1 influenza. I enjoyed reading this paper, which deals with an interesting and relevant issue. However, I have several comments that could enrich the discussion.

1. The introduction could be enriched by citing sources reporting the frequency of reported laboratory acquired infections in different countries.

2. Epidemiological surveillance is presumably enhanced in areas where BSL laboratories are located. This should increase the likelihood of rapidly detecting symptomatic infections associated with laboratory accidents. Authors may want to discuss this.

3. The title should reflect the focus of the paper, which is on the potential laboratory escape of influenza viruses.

4. Some of the scenarios explored in the paper could be based on previously reported laboratory-acquired infection events. For related studies see for instance:

http://www.biosafety.be/CU/LAI/Recent_LAI.html For instance, a well-known laboratory acquired SARS event was documented by Lim et al. NEJM 2004 (http://www.nejm.org/doi/full/10.1056/NEJMoa032565) which could be helpful to calibrate detection and control scenarios explored in the paper.

5. The potential role of immunization of laboratory workers should also be discussed. In particular, the Special Immunizations Program which is unique in the United States could be cited (http://www.nap.edu/catalog.php?record_id=13112)

6. In regards to the role of the location of biosafety laboratories, authors should discuss that environmental justice seeks to compare particular population vulnerabilities to different infectious agents beyond urbanization levels, which may impact the geographic location of BSLs.

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