

National Institutes of Health's Technical Clarification Responses to Questions from National Academies' Panel on NIH's Draft Supplementary Risk Assessments and Site Suitability Analyses for the National Emerging Infectious Diseases Laboratory at Boston University

NOTE: While the NIH has answered the written questions from the panel members as completely as possible under the circumstances of limited time, the NIH reserves the ability to amend any answers in the final version of the Supplemental Analyses and response to comments.

Question 1) Massachusetts asked you to consider "malevolent release." Why did you not do that?

Response:

The National Institutes of Health's Draft Supplementary Risk Assessments and Site Suitability Analyses for the National Emerging Infectious Diseases Laboratory at Boston University (Draft Supplemental Report) was prepared pursuant to the Federal National Environmental Policy Act and its implementing regulations and procedures. The Draft Supplemental Report was not prepared to respond to a specific question posed by the Commonwealth of Massachusetts, nor did the Commonwealth submit such a request to NIH. The draft supplemental report was prepared to address concerns raised by the public involving the release of Biosafety Level-4 infectious agents into the community under complex scenarios. The Commonwealth of Massachusetts can provide comments to the NIH on the Draft Supplemental Report in the same manner as any member of the public, and the NIH will respond to all comments in the final version of the report.

Question 2: How was the development of model and testing of the model vetted?

Response:

I.1 The conceptual and analytical frameworks of our models have been published in peer-reviewed journals:

Bian L 2004 A conceptual framework for an individual-based spatially explicit epidemiological model. *Environment and Planning B* **31**: 381-395

Bian L and Liebner D 2007 A network model for dispersion of communicable diseases. *Transactions in GIS* **11**:155-173

I.2 Similar modeling concepts, i.e. individual-based approach, have been published in recent years in *Science* and *Nature* and other peer-reviewed outlets:

Albert R, Jeong H, and Barabási A 2000 Error and attack tolerance of complex networks. *Nature* **406**: 378-382

Dye C and Gay N 2003 Modeling the SARS epidemic. *Science* **300**: 1884-1885

Eubank S, Hasan G, Kumar V S A, Marathe M V, Srinivasan A, Toroczkai Z and Wang N 2004 Modelling disease outbreaks in realistic urban social networks. *Nature* **429**: 180-184

Ferguson N M, Cummings D A T, Cauchemez S, Fraser C, Riley S, Meechai A, Iamsirithaworn S, and Burke D S 2005 Strategies for containing emerging influenza pandemic in Southeast Asia. *Nature* **437**: 209-214

Galvani A P and May R M 2005 Epidemiology: dimensions of superspreading. *Nature* **438**: 293-295

Koopman J and Lynch J 1999 Individual causal models and population system models in epidemiology. *American Journal of Public Health* **89**: 1170-1174

Longini I M, Nizam A, Xu S, Ungchusak K, Hanshaworakul W, Cummings D A T and Halloran E 2005 Containing Pandemic Influenza at the Source. **309**: 1083-1087

McKenzie F E 2004 Smallpox models as policy tools. *Emerging Infectious Diseases* **10**: 2044-2047

Watts D J and Strogatz S H 1998 Collective dynamics of 'small-world' networks. *Nature* **393**: 440-442

Question 3) How was the model's input data vetted?

II.1 All population and other spatial data (water bodies, etc.) are obtained from Census Bureau website. Of these data, the statistics of population are from SF3 (Summary File 3) of the census data. All other spatial data are from the TIGER data published by Census Bureau.

II.2 The daytime population data (business data) are purchased ESRI, Inc. which is a distributor of ReferenceUSA, Inc. So all daytime population data (Business data) are obtained from the same source: ReferenceUSA, Inc.

Question 4) What is your definition of worst case scenario?

Response:

The Draft Supplemental Report did not attempt to define the term "worst case scenario" as has been asked by the panel. Since a definition was not provided in the Draft Supplemental Report, the panel's question does not fall within the scope of technical clarification that NIH can provide at this time. The NIH will respond to all comments, including questions, on the Draft Supplemental Report in the final version of the report.