

August Ebola Modeling Coordination Group Meeting Notes

Approximately 30-35 participants from the following agencies and institutions joined the call: DoD, NIH, CDC, ASPR, Public Health England, InQTel, Georgia State, UVA, Northeastern, UW, JHU, University of Pittsburgh, LANL, Argonne, SUNY, Gates Foundation, UCSF, Penn State, Institute for Disease Modeling, USF, UF, Harvard.

Dr. Bryan Lewis (UVA) presented a metapopulation model of Nord Kivu and Ituri provinces. The model uses river networks and inland water networks to create a transportation network; connectivity is estimated using a gravity model modulated by travel times instead of geodesic distance. Case counts from the Ministry of Health are calibrated with spatio-temporally varying transmissibility, and the model is used to forecast relative risk across health zones. A forthcoming peer-reviewed publication will provide additional details on the transportation network and the mobility matrix. For additional details, contact Dr. Lewis at brylew@virginia.edu.

Dr. Alessandro Vespignani (Northeastern), in collaboration with NE, UF, FH and FBK, developed a spatially-structured agent-based model to estimate international risk of spread; forward projects for the number of cases and vaccine demand; estimate the number of averted cases; and assess vaccination strategies and scenario analyses. Parameters in the model were varied weekly according to data were from WHO/DRC sources. For additional details, contact Dr. Vespignani at a.vespignani@northeastern.edu.

Following the presentations, participants discussed the effect of underreporting on model results and suggested ways to account for underreporting. It was noted that this source of bias is time-varying and difficult to estimate, which complicates efforts to interpret modeling results. Participants discussed using estimates of the number of new cases linked to known cases to estimate underreporting.

Data (un)availability was also identified as an issue. The Humanitarian Data Exchange and DRC/WHO situation reports were offered as two sources of publicly available data. The modeling coordination group is maintaining a list of resources useful to modelers. To add or access resources, contact crivers6@jhu.edu or visit the group's slack (details below).

To continue coordination, please join our slack channel (ebolamcg.slack.com) at:
https://join.slack.com/t/ebolamcg/shared_invite/enQtNzlwMDM1OTIwMDgxLTg4ZDEwMDA0MDAxODE2NTdmZmQxMmM5MDMyNmY3YzI2NDUwNDhhM2M1YWYyMjU3MDY3ZDE1ZjkzZGFmMzg5NDg