



**DEPARTMENT OF DEFENSE**  
**UNITED STATES AFRICA COMMAND**  
**OPERATION UNITED ASSISTANCE (MA205 PROJECT)**  
**MONROVIA, LIBERIA**

REPLY TO  
ATTENTION OF

AFRICOM-J35

20 NOV 2014

MEMORANDUM FOR J-35, AFRICOM HQ

SUBJECT: ANALYSIS OF EBOLA FUNDING PROGRAM

1. The intent of this Memorandum is to provide an error analysis of the accepted Funding Course of Action. The reason for this analysis is to address concerns about the accuracy of the given coefficients. It is assumed that the funding programs available as well as the given margin of error are all accurate and consistent. The worry is that the unknown uncertainty in the probability of transmission ( $\tau$ ), the average daily number of contacts between those infected and those susceptible ( $c$ ), and the fatality rate ( $f$ ) would require a reconsideration of the accepted Course of Action of putting \$35 million in funding for Protection and Awareness and \$15 million in Contact Tracing.
2. To analyze the outcome of the Course of Action, a confidence interval was created based on the 3% margin of error for each finding program. The confidence interval shows the intervals of the new probabilities of transmission and average daily number of contacts between infected people and susceptible that resulted from the developed Course of Action. Mathematica was then used for Analysis on the maximum values and minimum values on those confidence intervals to evaluate the effect the error has on the fatality rate. (See Appendix A, Part I).
3. The key take away from the analysis is that the fatality rate can range anywhere from 49% in the best case scenario and 54% in the worst case scenario.
4. The minimum and maximum values from the confidence intervals of both  $\tau$  and  $c$ , created a new confidence interval of the death rate (See Appendix A, Part II). The conclusion is that the minimum death rate after the implementation of the Course of Action is 49% while the maximum death rate is 54%. The first indication from these results is that it is highly recommended to confirm the actual values of the given coefficients to remove any unknown uncertainty in the model. Doing so will provide a more definitive outcome and a more precise confidence interval. Next is to consider that another COA might seem to be better if the worst case scenario were true, but the difference may not be worth it, and in the best case scenario, our accepted COA is significantly more ideal. While it is important to understand the effect of the uncertainty on the model, it does not change the previous conclusion that the accepted COA will be most effective in reducing the number of deaths in Liberia