Review of: "An Optimal Control for Ebola Virus Disease with a Convex Incidence Rate: Imputing from the Outbreak in Uganda"

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Potential competing interests: No potential competing interests to declare.

The paper is well written with some grammatical errors and the foowling comments to address.

Title

The study is not fit to a model with Uganda data as means in the title. It is good to remove the Ugandan in the title.

Introduction

1. In the first paragraph, insert "," after reference [2].

2. In the last word of the first paragraph, delete " ." before reference [6].

3. In the first of the third paragraph, change "The" to "the" before "outbreak".

4. The fourth line of the last paragraph, insert space between "[21]" and "Mathematical models".

Organisation of the manusript

In line 3, delete "," after "Section 3" and "a]" after "gives".

Section 2

1. In line 11, insert "," after " populations"

2. The authors assume that all parameters are positive but some parameter values are nonnegative for instance the ranges [0 1] . Justify, please.

3. In page 6, there is inconsistency in the representation of the parameters. The definition of the parameters should be the same with the equation. Where is d0, d1,d2 and d4 in the equation (2.1)? Could it be that a0, a1, a2 in the equation (2.1) are mistaked in the parameters representation. What is S* in the equation (2.2).

3. For the last equation of equations (2.1) and (2.2), "\mu Q" should be removed from the D compartment as the natural death rate of the population do not cause infection especially the S and E compartments.

4. Replace "." with "," in the last equations of the equations (2.1) and (2.2).

5. Replace "S" with "s" in the word "Subject" after equation (2.3).

6. In page 8, justify the word "effective reproduction number" instead of "basic reproduction number".

7. Replace "=" with "is" in the page 6 for the different reproduction number.

PAGE 9

1. In Page 9, "." in the last equation of system (2.6) should be replace with "," while "W" in "Where" replace with "w".

2. The statement before equation (2.7) is not complete. Address, please.

3. The equation numbers (3.1) and (3.2) in page 9 are not mentioned in the work. The author, please number the equartion appropriately .

4. In the last line of the page 9, insert "," after "(c3)". Also, insert "," after "measures" in the line 3 of Section 3, page 9.

Expanded equation (3.1)

1. Why "N(t)" instead of "Q(T) even though it is not needeed in that last equation.

2. Replace "." in the D compartment with "," in equations (3.1) and (3.2).

3. Give definition for g(S, I, T, D) in equation (3.2).

4. The control parameters should be functions of t in equations (3.1) and (3.2).

5. The statement beween (3.2) and (3.3) should be punctual well.

6. Change the "=" after "T" in the line 1 after (3.3) to "as the" in page 10.

7. after "cost" in the line 2 after (3.3) in page 10, c_i should be square.

8. insert "," after "Hence", in the line before equation (3.4).

9. Insert "," in Equation (3.4).

10. It is good to show the existence of the optimal control.

11. Page 11 should be punctual very well and What is Z defined as?

12. Can S(0) be nonnegative when it is not possible to have zero human population.

In general for the figures

1. The siumulation figures are too small. The size need to be increased.

2.The line style of the figures should be differentiated with line styles that will show the different when the work is black and white.

3. It is good to include the state variables in the y-axes of the figures and the figure captions for easy understanding.

4. The author should plot for the control profiles of the control measures to see the time it takes to implement the controls.

5. I can not see the effect of the control measures on the death compartment even when the death compartment is infectious in the study. Please, justify.

6. The page should be read and punctual very well page 12. For instance in the line 1 of the page 12, insert "," after "Eq. 3.8". Also insert "," after "Using bounds" after equation (3.9).

7. Still in page 12, replace "was" with "is" after reference [39] in line 1 of Section 4, Numerical simulations.

Cost-effectiveness analysis

1. The second statement in this section is incomplete. the author should complete the statement as it is very crucial for the study.

2. What are the values of k_i's in the simulations?

Discussion and Conclusion

1. The bracket in this section should be close.

2. How do you get R0 for Uganda to be 1.5994 as there is no parameter estimation in the study. Also, Ugandan sholud be removed from the title of the study. Author can justify.

3. What makes the result desirable? The study should be compare with other works of similarility.