Review Form 1.7

Journal Name:	**Journal of Advances in Mathematics and Computer Science**
Manuscript Number:	**Ms_JAMCS_110718**
Title of the Manuscript:	**Global Stability Analysis of a Fractional-Order Ebola Epidemic Model with Control Strategies**
Type of the Article	**Original Research Article**

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PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Compulsory REVISION comments **1. Is the manuscript important for scientific community?** (Please write few sentences on this manuscript) **2. Is the title of the article suitable?** (If not please suggest an alternative title) **3. Is the abstract of the article comprehensive?** **4. Are subsections and structure of the manuscript appropriate?** **5. Do you think the manuscript is scientifically correct?** **6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.** **(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)**	In this paper the authors have proposed a fractional-order derivative model for Ebola virus disease (EVD) to assess the effects of control strategies on the spread of the disease in the population. The proposed model incorporates all relevant biological factors, health education campaigns, prevention measures, and treatment as control strategies. They computed the basic reproduction number R0 and qualitatively used it to assess the existence of the model states. In particular, they noted that two equilibrium points exist, the disease-free and endemic equilibrium points which are both globally stable whenever R0 < 1 and R0 > 1 respectively. They performed sensitivity analysis on the key parameters that drive the EVD dynamics to determine their relative importance in EVD transmission and prevalence. Model parameters were estimated using the 2014 Ebola outbreak in Guinea. Further, numerical simulation results are presented using fractional AdamBashforth-Moulton scheme to support the analytical findings. From the numerical simulations, they have noted that as decreases from unit, the solution profiles of the model attain its stability much faster than at alpha= 1. Furthermore, the results demonstrated that the aforementioned control strategies have the potential to reduce the transmission of EVD in the population. In my opinion as a reviewer, the idea is interesting and is a candidate for publication in the journal. However, it must undergo MAJOR revision according to the following comments: 1. The current must contain answers to the following questions: Why is this particular study important? What are the important results from this study different from others? What conclusions can be drawn from the results in this study? 2. How does the application of fractional differential operators enhance the modelling of Ebola virus? 3. What impact does the memory effect captured by fractional differential operators have on the accuracy of the model proposed in the paper? 4. The rest of the qualitative analysis of the model is exactly the same as found in numerous existing papers on the same sort of topic. In the presence of same existing works, how is your model better? 5. In what ways does the Caputo fractional operator with singular kernel differ from classical integer derivatives in terms of modelling Ebola virus? 6. What are the necessary conditions required for the existence of a unique solution to the proposed model? 7. How does the choice of fractional operator with singular kernel affect the stability of the infected compartments in various scenarios? 8. Support important model assumptions with biological evidences. Also state if the model is a new one or a modification of an existing model. 9. What is the epidemiological significance of all the theorems stated and proved in this paper. Be more detailed in discussing the many mathematical analyses carried out in the paper so readers can appreciate the work. 10. Tell us more about the stability, accuracy and convergence of the used numerical scheme?	

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Minor REVISION comments **1. Is language/English quality of the article suitable for scholarly communications?**		
Optional/General comments		

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

Name:	**Andrew Omame**
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