REPORT ON "A BAYESIAN ANALYSIS OF BIRTH PULSE EFFECTS ON THE PROBABILITY OF DETECTING EBOLA VIRUS IN FRUIT BATS" SUBMITTED TO PCI INFECTIONS

General Remarks:

In this manuscript, the authors used a longitudinal serology data from Cameroon, an age-structured data from Ghana which they assumed to be equivalent from the one to Cameroon and some bayesian techniques, they calibrated an age-structured epidemiological model of Ebola virus transmission in a straw-colored fruit bat(Eidolon helvum) population. Then they found that the probability of not have an infectious bat in a sample of 25 adults and 25 young bats are $0.02(95\% \text{ CI}:0.0039 - 0.069)$ and $0.48(95\% \text{ CI}:0.29 - 0.70)$ respectively. Finally, they estimated the optimal period for isolating Ebola virus from an Eidolon helvum population.

The manuscript is overall well written and generally sound, but contains several points that I highlight below.

(1) Page 3, Line 82: Since that some parameters of your model are random process, we are not longer talking about a system of ordinary differential equations but a system of random ordinary differential equations.

(2) Mechanistic Model(Page 3;4): Describe the infection process.

(3) Table 2: Describe the choice of the other prior distributions except the three described in Annex 2.

(4) Page 6, Equation (3): What is Σ in I_Σ?

(5) Page 6, Equation (20) and (21): Highlight the dependency of $\tilde{\mu}$ with time. It should be $\tilde{\mu}_A(t)$ and $\tilde{\mu}_Y(t)$.

(6) Page 6, Equation (22): Maybe it is a typo. Otherwise clarify the difference between S_A and $\mathcal{S}_A$. There is a confusion in the whole manuscript.

(7) Page 7, line 120: Explain the reason of choosing the start of the year 2017 as initial time despite the fact your data started in December 2018 (Table 1).

(8) Page 8, line 131: **its** carrying capacity...(not **it's**).

(9) Page 16: The gap between the current results and the previous one is not well supported.

(10) Page 18 and 19: Recommendations suggested in the limitations will required a lot of resources. Is it realistic to build such models ?