

## DELAYING AGE OF INFECTION: A PERNICIOUS EFFECT OF VECTOR CONTROL

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We study the effect of vector control for an emerging disease in an environment where there are already vector transmissible diseases. We do it for what we call a childhood disease, where we assume the following: the disease has mild complications for infants but it is relatively dangerous for adults (as an example we have Zika virus that can provoke severe complications in the fetus when a pregnant woman is infected. This virus appeared in Brazil where there was already vector control related to dengue fever).

It is well known that a sufficiently efficient level of vector control decreases the effective reproduction number of such diseases, eventually making it smaller than one, making impossible to the infection to propagate and give rise to epidemics.

Yet, before achieving such a state, or for a different, emerging, disease, partial control of the vector of population decreases transmission causing a delay on the average age at infection. So, for a sufficiently high level of vector control but not high enough, the average age at infection of the individuals may be where the effects of the infection are most dangerous for such an emerging disease even if they are not for the previously existent one.

We relate the average age at infection with several parameters that characterize the vector control and study that relation.