Bi-annual bat birthing helps Ebola persist

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A bat-filled tree has been touted as the source of the on-going Ebola epidemic in Western Africa – now research from Massey University suggests that the twice yearly birthing of bats may also be responsible for maintaining the disease.

Previous research has linked bats to the spread of filoviruses, the group that includes the Ebolavirus, as they are able to carry, maintain and allow the disease to evolve without being affected themselves, before passing

it on to humans. However not much is understood about how the virus persists in bat populations says epidemiologist Dr David Hayman.

In a paper published in the prestigious *Proceedings of the Royal Society B*, Dr Hayman combined existing data from field and experimental studies to mathematically model the infection of bats with filoviruses. He found that how often the bats gave birth each year was a key factor in how long the virus was maintained in the bat population. While one highly synchronized annual birthing did not allow the viruses to last, a more frequent bi-annual birthing could result in the viruses persisting. He says this longer persistence in bat populations with more frequent birthing was supported by field studies and may explain the periodic nature of human filovirus infection.

"The results of this study provide a useful framework not only for future study, but also for emerging infectious disease management," Dr Hayman says. "If we're to have any hope of understanding and preventing outbreaks in humans, we must first understand viral dynamics in wildlife populations.

More information: Hayman DTS. 2015 "Biannual birth pulses allow filoviruses to persist in bat populations." *Proc. R. Soc. B* 20142591. dx.doi.org/10.1098/rspb.2014.2591

Provided by Massey University

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