Chikungunya is an ancient infectious disease that is currently endemic in both tropical and subtropical 12ns TETEMC /P #Lang (en-US)/MCID 26 BDC BT -0.044 Tw 8.0 0 8 454.975 Tm[only )-0.7 (12 out of the 53 outbreaks )-0.8 (had

to Chikungunya has had correlations in which it was and was not significant to the outbreaks, making it unclear whether precipitation is a factor towards spreading Chikungunya. In Southeast Asia, the current maximum precipitation is around 250 mm (Supharatid et al. 2022). However, due to climate change, the maximum projected increase of precipitation is approximately 8.09% and 15.58% (Supharatid et al. 2022). Therefore, a drastic increase of precipitation will happen if climate change continues to occur, resulting in a possible increase of outbreaks. While Servadio et al. (2017) shows that precipitation may not be significant to Chikungunya outbreaks in Southeast Asia, it is a factor that must be taken into consideration, as climate change will bring larger amounts of rainfall to the region. Therefore, funding must be invested into further research clarifying whether precipitation is a factor towards Chikungunya outbreaks in Southeast Asia. In conclusion, if funding is not invested into delaying or stopping climate change, an increase of temperature and precipitation will take place in Southeast Asia, causing further transmission and possible increases of outbreaks.

Aside from climate change increasing the number of Chikungunya outbreaks in Southeast Asia, the overuse of insecticides has resulted in insecticide resistance in the mosquito species *Aedes aegypti*. Because there is no current vaccine or treatment available, Southeast Asia has routinely used insecticides to prevent transmission of the disease (Marcombe et al. 2019). During outbreaks, insecticides will often be sprayed

being used, therefore delaying development of insecticide resistance.

Aside from the overuse of insecticides in Southeast Asia, a lack of blood screening has been a factor in various outbreaks within the region. In Thailand in 2009, companies often required a seven day “screening” period, in which the donor was isolated and observed for any Chikungunya symptoms before donating blood (Appassakij 2016). In addition to being observed and isolated, the donor would often have to go through a series of questions to determine whether they were at risk for Chikungunya infection or not, such as their occupation, family history, and if they were in contact with anyone that was recently infected (Appassakij 2016). While this strategy did reveal that 2.3% of the potential donors were at risk, with 11 of the 299 potential donors developing symptoms of Chikungunya during the isolation period, the quarantine period was only implemented 85% of the time (Appassakij 2016). Consequently, this strategy was only 78.8-81.6% effective, resulting in individuals receiving blood transfusions becoming at risk for infection (Appassakij 2016). During the 2009 Thailand outbreak, 9440 Chikungunya suspected cases were reported after blood transfusions, with approximately 1170 suspected cases by week 16 (Appassakij 2016). Because the observation strategy was not fully implemented and was only at most 81.6% effective (due to asymptomatic donors), blood screening was a clear factor in spreading Chikungunya in Thailand. In another outbreak in Myanmar in 2019, all donors that were positive for Chikungunya were asymptomatic (Kyaw et al. 2019). In a study conducted by Kyaw et al. (2019), 14 of the 500 blood samples collected from donors were positive with Chikungunya. Consequently, the lack of blood screening resulted in 3.2% of blood donors and 20.5% of children (patients) being positive for Chikungunya (Kyaw et al. 2019). Because blood banks in Myanmar utilized observation-based strategiks

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