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Vinodh Kumar Chellamuthu*, Department of Mathematics, 225 S 700 E, Saint George, UT 84770, and **Jisun Otterson** and **Ammon Taylor**. *Modeling Dengue Outbreaks: Analyzing the Effects of Wolbachia Transinfection*. Preliminary report.

Dengue is a mosquito-borne viral infection that is usually found in tropical and subtropical regions around the world. The cycle of dengue transmission can be broken by infecting mosquitoes with Wolbachia bacterium, which reduces the level of dengue virus in the mosquito and shorten the host mosquito's lifespan. Several studies have shown that infecting mosquitos with Wolbachia and releasing them (a process called Transinfection) can spread this bacterium to the local mosquito population and mitigate the impact of the disease. We developed a mathematical model to investigate the efficacy of Wolbachia in blocking dengue virus transmission. Our model also incorporates the local temperature data, which can affect the procreation and growth of mosquitos. Furthermore, our simulation results provide new insights into the effectiveness of Wolbachia in reducing dengue at a population level. (Received February 29, 2020)