

# Ground Truth- Flavivirus

**Pathogen Type:** Currently referred to as Unknown Flavivirus (UF). UF is a flavivirus and, more specifically, a hemorrhagic fever most similar to yellow fever and dengue.

**Origin & Emergence Details:** UF has origins tracing back to the country of Teal (representing the United States) rather than a nation in the tropics, spiking off of the massive pet trade in primates - there are thousands in Teal, despite no native species of primate (other than humans). Poor conditions lead to human exposure. UF is spread by *A. albopictus* mosquitoes, mostly through horizontal transmission, especially in areas with significant human or alternative primate populations. However, UF also has an abnormally high rate of vertical transmission (15% as compared to the standard measured flavivirus vertical transmission rate ranging between sub-1% and 2%), allowing it to self-sustain in low-density human or alternative primate populations, where it would otherwise burn out.

In addition, the aggressive and persistent nature of *A. albopictus* allows UF, which has specialized into using these mosquitoes for transmission, to persist into higher-density and traditionally cooler-temperate climates. *A. albopictus* is notorious for its ability to breed even within potted plants- this allows for them to potentially survive within airports and transmit UF to people flying all over the globe.

**Pathogen characteristics:** Like other human-specializing viruses, UF also circulates in non-human primates on occasion. Symptoms appear as a distinctive “curling” rash, blood in stomach (black vomit), and blood in urine, along with a high fever and severe muscle pain. Symptoms are incredibly minor in most, with children under 15, in a similar manner to yellow fever, being most susceptible. 66% of patients show no to incredibly mild symptoms, with 33% showing noticeable symptoms- of that 33%, 9% (or 3% of total afflicted) show severe or fatal symptoms. The total death rate is about 1-2%, varying primarily based on age. The death rate of those that develop severe disease is roughly 40-50%, similar to the higher estimates for yellow fever.

**Other impacting factors:**

**Climate:** the climate is, on average, 2°C warmer than it is today. The Teal Country (representative of the United States) has gotten progressively hotter and wetter in recent years, making it the perfect habitat for mosquitoes. In addition, the warmer, wetter weather has led to an increased number of hurricanes. The disaster relief efforts from these hurricanes have resulted in more significant exposure time to the infectious mosquitoes for volunteers from outside of the region.

**Ecology:** The range of *Aedes albopictus*, the Asian Tiger Mosquito, has significantly expanded in the wake of the warming climate. *Ae. albopictus* currently occupies the entire eastern portion of the United States, all the way up to the southeastern edges of Vermillion. In addition, the Asian Tiger Mosquito has also spread into most of continental Yellow (representing Europe), with some stretches into Lemon

(representing the UK). *Aedes albopictus* is a highly aggressive, highly versatile species of mosquito that is more than capable of transmitting flaviviruses.

Economic & Social Issues: Teal's healthcare system is difficult to navigate, resulting in many people being afraid or otherwise unwilling to go to the hospital. This would result in a significant unreported spread of a novel virus- similar to the unreported vs reported COVID-19 cases in the US and elsewhere during this current pandemic.