Epidemiological Model of the spread of COVID-19 in Hawaii's Challenging Fight against the Disease

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The COVID-19 pandemic is far from the first infectious disease that Hawai`i had to deal with. During the 1918-1920 Influenza Pandemic, the Hawaiian islands were not spared as the disease ravaged through the whole world. Hawai'i and similar island populations can follow a different course of pandemic spread than large cities/states/nations and are often neglected in major studies. It may be too early to compare the 1918-1920 InfluenzaPandemic and COVID-19 Pandemic, we do however note some similarities and differences between the two pandemics that we will discuss in this tutorial.

Hawai'i and other US Islands have recently been noted by the media as COVID-19 hotspots after a relatively calm period of low case rates. U.S. Surgeon General Jerome Adams came in person on August 25 to Oahu to address the alarming situation. In this tutorial, we will discuss the peculiarity of the situation in Hawai'i and provide detailed modeling of current virus spread patterns aligned with dates of lockdown and similar measures. We will present a detailed epidemiological model of the spread of COVID-19 in Hawai'i and explore effects of different intervention strategies in both a prospective and retrospective fashion. Our simulations demonstrate that to control the spread of COVID-19 both actions by the State in terms of testing, contact tracing and quarantine facilities as well as individual actions by the population in terms of behavioral compliance to wearing a mask and gathering in groups are vital. They also explain the turn for the worst Oahu took after a very successful stay-at-home order back in March.