

REOPENING JAPANESE TOURISM IN HAWAII: IS IT SAFE?



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Tourism is Hawaii's largest industry. Over 10.4 million visitors came to Hawaii in 2019. Hawaii has been a favored destination for Japanese tourists since the early 1960s when Japan started to allow tourists to go abroad for leisure travel. Japanese tourism to Hawaii has a history of being disrupted by economic and security shocks. Japanese tourism declined during the First Gulf War (1990-1991), the 1990s Japanese economic and financial crisis, the aftermath of the September 11, 2001 terrorism events, the second Gulf War (2003-2004), and the Great Recession (2007-2009). Arrivals from Japan peaked at 2.22 million visitors in 1997 and declined over the next 22 years to 1.58 million visitors in 2019.

In response to news about the dangers of COVID-19 and the potential for a global pandemic, Japanese tourists started to cancel their flights to Hawaii in February 2020. From February 23 to March 22, daily passenger counts on flights from Japan declined by more than 85 percent. Effective on March 26 Hawaii Governor David Ige mandated a 14-day self-quarantine on all trans-Pacific passengers arriving in Hawaii. On April 3, the Government of Japan stopped all passenger flights to and from Japan and the United States.

On October 27, more than six months after the closing of travel between Japan and Hawaii, the Hawaii State Government announced that an agreement between the Hawaii State Government and the Government of Japan had been reached to allow tourism from Japan to Hawaii to resume if Japanese visitors take an RT-PCR COVID-19 test from a "trusted travel partner" in Japan no more than 72-hours before departure. If test results are unavailable prior to departure, Japanese visitors can self-quarantine in Hawaii until their test results become available on the Hawaii Safe Travels App.¹ Passengers without an RT-PCR test must self-quarantine for 14 days.² Twenty-one trusted travel partners have been approved for COVID-19 testing beginning on November 4. Upon return to Japan, visitors are required to quarantine at their homes for 14 days.³ Scheduled flights will resume on November 6. Hawaiian Airlines (HAL), Japan Airlines (JAL), and All Nippon Airways (ANA) will offer just ten flights (in total) during the month of November, with a larger number of flights from an expanded number of cities and airports in Japan expected to begin in mid-December.⁴ These changes leave in place Japan's current ban on leisure travel to Japan by residents of the United States and Hawaii and strict restrictions on business travel.

In this short policy brief, we aim to answer four questions. 1. Will Japanese tourists coming to Hawaii be COVID-19 free after taking a pre-departure PCR test? 2. Are some Japanese tourists likely to be infected in Hawaii and bring COVID-19 back to Japan? 3. Will the combination of a pre-departure test and a quarantine upon return to Japan lead to a substantial resumption of tourism to Hawaii? 4. What are the potential pitfalls and risks from reopening Japanese tourism?

Our answers to each of the four questions are informed by projections of new infections per day

1 The Hawaii Governor's Office has indicated that a Japanese-language version of the Hawaii Safe Travels app is under development.

2 Our quantitative analysis in this policy brief is done under the assumption that all arriving passengers from Japan have been screened by the RT-PCR test for the virus. In addition, the analysis does not consider how tests on arrival in Hawaii imposed by county governments would affect results.

3 A fourteen-day quarantine is required for all passengers from international destinations by several other governments in East Asia and Oceania, including Hong Kong, Taiwan and China.

4 Google flights shows scheduled non-stop flights by ANA, JAL, Hawaiian, and United from Tokyo (Narita and Haneda airports) to Honolulu on December 1.

in each of the 50 U.S. states and Japan made by the Institute for Health Metrics and Evaluation (IHME), an independent global health research center at the University of Washington.⁵ The IHME COVID-19 forecasting team uses a deterministic SEIR (susceptible, exposed, infectious and recovered) framework “to model possible trajectories” of new infections per day, hospitalizations per day, and COVID-19 deaths per day.⁶ The IHME model has been widely used by governments throughout the world and independent research groups as a source of projections of key COVID-19 data.⁷ We caution that forecasts are not designed to be perfect predictors, and can contain large errors if government policies or human behavior or the seasonal disease environment in these states and countries unexpectedly change.

1. WILL JAPANESE TOURISTS TAKING A PRE-DEPARTURE COVID-19 TEST BE COVID-19 FREE WHEN THEY ARRIVE IN HAWAII?

On October 23, 2020, the UW IMHE model projected that in Japan 2,031 people, 1.61 per 100,000 population, became infected with COVID-19 that day. Under the assumption that the average duration of infection is 15 days, we estimate the daily prevalence of COVID-19 infection in Japan on October 23, 2020 by summing up the estimated number of new cases over the previous 15 days. This analysis finds that an estimated 19.8 people per 100,000 population in Japan had COVID-19 infections on October 23. The Japan estimates compare favorably with California estimates where on the same day, the UW IMHE model projects that about 18.57 people per 100,000 population became infected with COVID-19. The analysis finds that an estimated 264.09 people per 100,000 population in California had COVID-19 infections on October 23.

A central result of this analysis is that the prevalence of COVID-19 in California is 13.34 times higher than in Japan. This means that if all visitors from California and Japan are screened with a pre-departure PCR test using the same testing protocols, then a visitor from Japan will be roughly 13.34 times less likely to be infected with COVID-19 on arrival in Hawaii than a visitor from California.⁸

Next we estimate the number of visitors from Japan and California who are infected with COVID-19 on arrival in Hawaii. We assume that (1) half of the infected population will not travel because they are showing symptoms or have received a positive COVID-19 test result and (2) the other half of the infected population that plans on traveling undergoes pre-departure screening that includes an RT-PCR test.⁹ We assume, conservatively, that the RT-PCR test is 80 percent sensitive, i.e., that it picks up 80 percent of actual infections. In this case, for every 5,000 California residents who travel from California to Hawaii, we expect that $0.5 * (264.09/100,000) * (1-0.8) * 5000 = 1.32$ arrive infected with COVID-19. Similar calculations show that for every 5,000 visitors who travel from Japan to Hawaii, we expect that $0.5 * (19.8/100,000) * (1 - 0.8) * 5,000 = 0.1$ Japan visitors arrive in Hawaii infected with COVID-19.

Now let's assume that Japan tourists continue to use masks in Hawaii at the high rate that they use them

5 Throughout this policy brief, we focus on estimates of actual daily infections, which include not only confirmed cases—the public data announced each day, but also estimates of the number of asymptomatic and presymptomatic infections. These estimates are much higher than the number of daily confirmed cases from testing.

6 IHME COVID-19 Forecasting Team. “Modeling COVID-19 scenarios for the United States.” *Nature Medicine*. 23 October 2020. doi:10.1038/s41591-020-1132-9.

7 IHME forecasts of key COVID-19 variables can be found at <https://covid19.healthdata.org/global?view=total-deaths&tab=trend>. Last access on Oct. 25, 2020.

8 We compare California with Japan because California is the source of more Hawaii tourists than any other U.S. state. Other states sending substantial number of tourists to Hawaii—Washington, Arizona, Nevada, Colorado, and Texas—had higher COVID-19 prevalence rates on October 23 than California. Our analysis does not take into account selection effects whereby Japanese tourists choosing to visit Hawaii might be more or less likely to be infected with COVID-19 than the average resident of Japan.

9 See CDC, COVID-19 Pandemic Planning Scenarios, Sept. 10, 2020. Available at <https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html>. Last access on Oct. 27, 2020.

in Japan—87 percent of people in public places.¹⁰ The bottom line is that Japanese tourists will pose an extremely small risk of infecting Hawaii residents, U.S. tourists, or visitor industry workers.

Two cautionary notes. First, the IHME forecasting team projects that the daily infection rate in Japan will rise rapidly over the next three months. It projects a more than five-fold increase in daily infections, with the number of people in Japan who become infected each day rising from 2,031 per day on Oct. 23, 2020 to 11,778 per day on Feb. 1, 2021. This change increases the expected number of infected Japanese visitors on arrival in Hawaii from 0.1 to 0.65 visitors per 5,000 visitors. Second, the IHME forecasting team also projects that the daily infection rate in California will rise rapidly over the next four months. It projects a more than five-fold increase in daily new infections, with the number of people in California who become infected each day rising from 7,334 per day on Oct. 23, 2020 to 40,937 per day on Feb. 1, 2021. This change increases the expected number of infected California visitors arriving in Hawaii from 1.32 to 7.9 visitors per 5,000 visitors.¹¹

2. WILL JAPANESE TOURISTS BECOME INFECTED IN HAWAII AND BRING COVID-19 BACK TO JAPAN?

First, suppose that Japanese tourists mask when they are outside their hotel room at the same rate as they mask in Japan: 87 percent. For the 87 percent who wear their mask and follow other recommended safety practices, becoming infected in Hawaii is likely to be a rare event. We conclude that it is highly likely that the prevalence of COVID-19 infection in Japanese tourists returning to Japan would be about the same as when they left Japan.

Now consider the other 13 percent of Japanese tourists who do not regularly use masks in Japan. Suppose this group wears masks at the same rate as people in Hawaii—about 75 percent of the time when they are outside their hotel room. How likely is it that some will become infected with COVID-19 in Hawaii? We calculate this risk by assuming that these tourists would be subject to the daily risk of transmission faced by a Hawaii resident. Using IHME estimates for October 23, 2020 showing that 232 people became infected with COVID-19, the daily risk to a Hawaii resident of becoming infected with COVID-19 is equal to the number of daily new infections/Hawaii population = $232/1,416,000 = .00016$. In 2019 a Hawaii vacation for a Japan tourist lasted an average of 5.9 days. We calculate that the chance that a Japanese tourist from the sporadic masking group remains uninfected after 6 days in Hawaii is $(1-.00016)^6 = .999$. Applied to the 13 percent of 5,000 tourists who follow Hawaii masking practices, and assuming no infections among those who mask, that means that 0.62 of every 5,000 Japanese tourists return to Japan infected with COVID-19.

One way to ensure that Japanese tourists are less likely to become infected during their trip would be for the Hawaii state government to mandate statewide that all residents and tourists use masks when outside their home or hotel room. There is currently in Hawaii a hodgepodge of masking policies with various exceptions imposed by county governments that most residents find very difficult to disentangle. The IHME forecasting team found that 76 percent of Hawaii residents always wear masks outside their home. While this number is much better than the U.S. average of 49 percent, it is still well below recommended levels of 95 percent. With the resumption of foreign and domestic tourism in Hawaii, it is critical that our masking policies be simple and easy for all tourists, including non-English speakers, to comprehend. Higher rates of mask use by Hawaii residents would also make a major contribution to controlling transmission among Hawaii residents, which ultimately is the key to a healthy Hawaii economy in 2021.

¹⁰ IHME reports that 87 percent of Japan's population "say they always wear a mask in public." See <https://covid19.healthdata.org/japan?view=mask-use&tab=trend>. Last access on October 27, 2020.

¹¹ Adoption of a universal masking policy in California would reduce projected new daily infections on Feb. 21, 2020 to 22,980.

3. WILL THE COMBINATION OF A PRE-DEPARTURE TEST AND A 14-DAY QUARANTINE UPON RETURN TO JAPAN LEAD TO A SUBSTANTIAL RESUMPTION OF TOURISM TO HAWAII?

Our baseline assumption is that only a small number of Japan tourists will want to take a one-week vacation in Hawaii when it must be accompanied by a 14-day quarantine in Japan upon return from Hawaii. The time cost of such a vacation is just too high for a family with working adults and school children. The main group with the ability to cope with a 14-day quarantine on arrival in Japan is older, retired adults. Adult visitors over the age of 60 were 21.4 percent of 2019 visitors to Hawaii from Japan, or 337,000+ people. That population could potentially be increased by millions of other Japanese adults over the age of 60 who otherwise would have visited Australia, Europe, or North America except that those destinations remain closed or are perceived as dangerous places to visit. The number of potential senior visitors would be affected by the willingness of this group to take the risk of flying to Hawaii from Japan and potentially becoming infected in flight or in Hawaii.

It is possible that other categories of Japanese visitors would choose to visit Hawaii. This could arise because Hawaii is one of the few international destinations to which Japanese tourists have access and some groups could be willing to incur the high time and inconvenience costs resulting from a 14-day quarantine on return to satisfy pent-up demands for travel. Consider a Japanese family without children where both adults are working from home due to the pandemic. This family could decide that the subsequent 14-day quarantine is pretty similar to their everyday lives inside their home and choose a Hawaii vacation. Are there many Japanese working from home due to the pandemic? According to a survey by the Tokyo Metropolitan Government at the end of June 2020, 57.8% of 2,034 companies in Tokyo adopted “tele-work”, i.e., working from home. A year prior in 2019, the same figure was 25.1%. The survey shows that increases in tele-work apply not only to large firms but also to small and medium enterprises. Forty percent of companies that adopted tele-work intend to continue tele-work.¹² We conclude that this group of Japanese tourists is likely to be very small due to the time and inconvenience cost of the quarantine, job security considerations stemming from potential travel disruptions, and children attending in-person classes at their schools.

More Japanese will want to visit Hawaii when the percentage of Hawaii residents currently infected with COVID-19 declines. For this to happen, more Hawaii residents need to wear masks in public places and when gathering in small groups. When daily case counts in Hawaii decline to beneath a target level specified by the Government of Japan, it could decide to lift its 14-day quarantine on residents returning from Hawaii and replace it with a rapid antigen test or a PCR test on arrival in Japan coupled with quarantine until test results become available. A post-arrival rapid antigen test with 0.80 sensitivity would substantially reduce the number of residents returning to Japan who are infected with COVID-19 and enter into Japan undetected.

It is certainly possible that Japanese visitors will not return to Hawaii in substantial numbers until an effective vaccine is developed and a sufficiently high percentage of the Hawaii population is vaccinated. This could happen by the second half of 2021 or not happen until sometime in 2022 or even early 2023 depending on how vaccine trials and distribution logistics progress.

¹² Available at <https://www.metro.tokyo.lg.jp/tosei/hodohappyo/press/2020/09/14/10.html> (last access on October 25, 2020). A survey by Mynavi News in early September 2020 (n=321) reports about 68 percent of respondents indicated they tele-work. Available at <https://news.mynavi.jp/article/20200819-1217371/> (last access on October 25, 2020). Another regional social networking service company informs that more than 60 percent of respondents (total n =924) report they work remotely. Available at <https://prtimes.jp/main/html/rd/p/000000056.000016981.html> (last access on October 26, 2020).

4. WHAT ARE THE PITFALLS TO BRINGING MORE JAPANESE TOURISTS TO HAWAII?

We concluded above that “more Japanese will want to visit Hawaii when the number of Hawaii residents currently infected with COVID-19 declines.” For the state of Hawaii and, in particular the city and county of Honolulu, COVID-19 cases confirmed by testing have been gradually falling since September 2. However, the IHME forecasting team projects a third wave of the virus over the next 3 months, with the number of infected people in Hawaii more than tripling between October 23 (3,219 people) and February 1 (11,736 people). IHME also projects that the estimated number of infected people in the United States will also increase, albeit at a slower rate than in Hawaii, between October 23 (1,788,267 people) and February 1 (3,905,835 people). If the predicted surge in the Hawaii epidemic actually occurs, then it will sharply reduce demand by Japanese residents to travel to Hawaii this winter.

For Hawaii, the key to restarting Japanese and domestic tourism successfully over the next year is straightforward: **Reduce and control COVID-19 transmission in Hawaii.** This would mean that individuals decide not to join group gatherings during Halloween, Thanksgiving, the three weeks leading up to Christmas, and New Year’s Eve. If Hawaii residents increased their adherence to masking from 76 percent to 95 percent of time spent outside the home, the IHME forecasting team projects that the number of infected people in Hawaii on February 1, 2021 would only be 5,640 people rather than 11,865 people. If Hawaii’s people decide to behave with more aloha over the next 10 weeks, the reward will not only be fewer COVID-19 infections, hospitalizations, and deaths, but also growing flows of tourists from Japan.

If Japanese tourists maintain the same social distancing practices masking practices they use in Japan, then it is likely that that transmission between Japanese tourists and Hawaii residents will be rare. Accordingly, educational information and videos in Japanese should be provided on planes from Japan informing visitors of Hawaii’s policies for COVID-19 prevention and asking for their aloha in complying with them.

Although few Japanese tourists will arrive infected with the novel coronavirus, even one infected person could trigger an outbreak. A Japanese tourist could become infected via a tourism worker or interaction with other residents and trigger an outbreak. Containment of these outbreaks is vital and Hawaii authorities must have the capacity to rapidly identify infections and respond immediately through testing and surveillance. A sound surveillance system that monitors high-risk settings in the tourism industry is important for anticipating and stemming transmission. Relevant populations for surveillance include any workers with frequent contact with visitors, such as restaurant servers, front desk staff, housekeepers, and any other high-contact occupations. Any of these workers developing potentially COVID-19 related symptoms should be required to report them, remain off-site and be offered free immediate testing, followed by aggressive contact tracing and workplace testing to identify additional infections. Financial incentives, such as continued pay during quarantine, should be offered to exposed or infected workers to self-quarantine.

These measures must be accompanied by rapid testing of possible cases and identification of close contacts. Contact tracing by Hawaii health authorities enables close contacts to be quickly identified, tested, and isolated. It is vitally important for the state to have contact tracers who are fluent in Japanese and knowledgeable of Japanese cultural norms so as to elicit information during contact tracing. Sufficient capacity must be in place to monitor their symptoms and compliance with isolation orders. State authorities also must have capacity to analyze outbreak data and to communicate information about the outbreak to the public and the visitor communities.

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