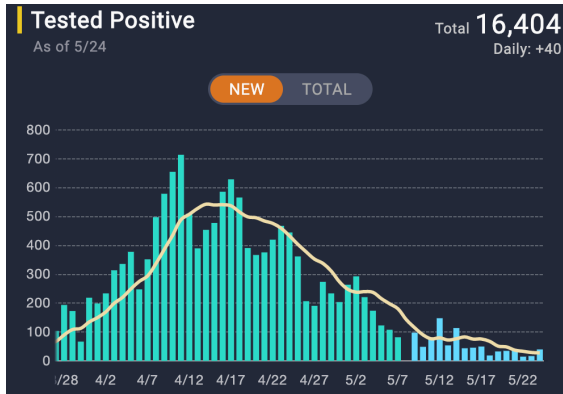


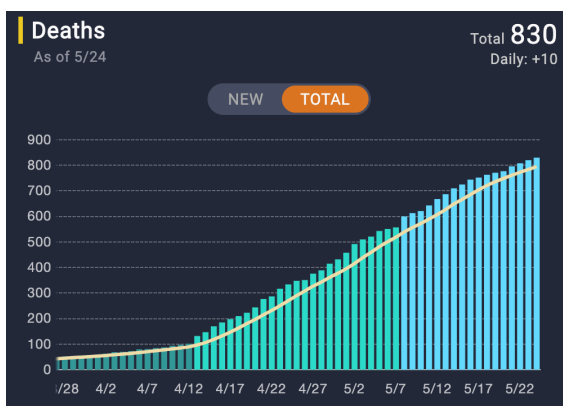
## Situation report & opinion – COVID19; Japan, Tuesday 26<sup>th</sup> of May 2020

Confidential – for internal circulation only, not for release to outside parties without the prior consent of the author. This document represents the opinion of the author and does not constitute the provision of medical care. Readers with concerns over their individual health should contact their physician for advice.

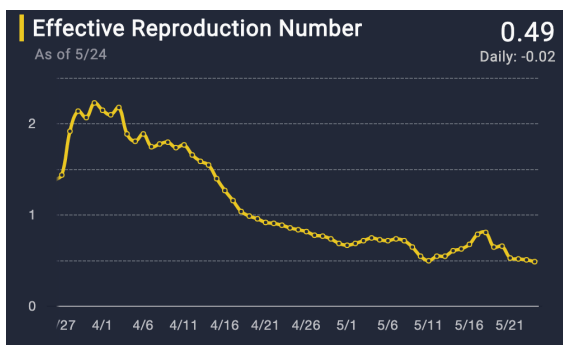
### Current Situation in Japan



Nationwide there have been fewer than 100 new diagnoses per day for over ten days (114 cases on the 14<sup>th</sup> of May). As a consequence of falling case numbers, Japan's state of emergency has now been lifted in the final five regions in which it remained in place (Tokyo, Kanagawa, Saitama, Chiba and Hokkaido) – despite case numbers being marginally over the declared threshold for discontinuation (0.5 cases per 100,000 population) in Kanagawa and Hokkaido.



At the end of this first phase of the pandemic, by international standards the number of deaths from COVID19 has been low at below 1,000, with fewer than 200 patients now remaining in hospital in critical condition. This fits broadly with a pattern seen in several other Asian countries.



The effective reproduction number (R) – the number of uninfected people who will contract COVID19 from an infected individual - has been calculated to be below 1.0 since the 19<sup>th</sup> of April. There is broad consensus that it is unreasonable to hope for complete eradication this disease so attention will now focus on the extent to which normal economic and social activity can be resumed without an increase in the rate of new infections (an R number of over 1.0).

## ***Responding to the Challenge of Adapting to a New Normal***

In the earlier stages of Japan's COVID19 outbreak, the effective reproduction rate was 2.0 or a little higher, with a reduction achieved through widely adopted social distancing. This is in contrast to rates of 4.0 or higher observed in February and March in many western countries where significantly more widespread and severe outbreaks resulted. The reason for the difference in initial rate of spread remains the subject of much debate and speculation in the scientific community and the media. However, it is unlikely that any definite answers will emerge in the immediate future.

People infected with the SARS-CoV2 virus seem to be at their most contagious from a few days before to a few days after the onset of symptoms, consistent with our understanding of many other better studied viral infections. A recently published analysis of well characterized COVID19 infections in which both the source and infected individuals were clearly identified has estimated that 46% of infections occur from presymptomatic patients (those who were well at the time of spreading infection but subsequently became sick), 38% occur from patients with symptoms, 10% from asymptomatic spreaders and an estimated 6% from environmental contamination. This seems to fit well with how COVID19 has been seen to spread both within countries and across international borders. The wider implications are that only a little over a third of infections can be prevented by asking sick people to self-isolate and that over 60% of infections will be transmitted by people who are either yet to develop symptoms or never become symptomatic. It further suggests that even if all sick people do immediately quarantine, the residual infections would still generate an R of over 1.0 if life in Japan returned to its pre-emergency state routines.

The "new normal" which is therefore envisaged by policy makers is an adaptation to allow as much economic activity as possible while maintaining an R of below 1.0. Failing this, a robust surveillance system needs to be in place to then allow restrictions to be quickly imposed across a region should the number of infections start to rise. Decisions have been informed based on the accumulated evidence on transmission of infection and the data from outbreaks in different countries in order to determine which types of activities are particularly likely to cause rapid spread of infections and which seem to be of less consequence.

We still don't fully understand exactly how SARS-CoV2 spreads between individuals and in particular we have an imperfect understanding of the relative importance of spread by direct contact, spread from contaminated surfaces and spread by aerosolized droplets. However, viable viruses capable of causing infections in cell cultures have been found in experimentally generated aerosols for up to three hours after aerosol formation. It's therefore likely that environments where large numbers of people generate respiratory aerosols, such as when singing or shouting in a confined or crowded space, propagate outbreaks relatively quickly.

This fits well with observations from the early stages of the European outbreak where mass gathering events seem to have accelerated the spread of COVID19. Many infections were identified in 2,500 Valencia fans attending a champion's league soccer game held in Milan on the 19<sup>th</sup> of February and this may be one of the reasons that Spain's outbreak followed

quickly behind the one seen in Italy. Similarly, infection spread widely within a choir in Washington state – 87% of participants at a rehearsal held on the 10<sup>th</sup> of March appearing to have been infected by a single symptomatic member.

In this context, as in other countries, there are no plans to allow a resumption of mass gathering events in Japan in the immediate future. Events are likely to have a participation cap of no more than 50 over the next few weeks with an intention to gradually increase this limit only if case numbers remain within tolerable limits. Although it's too early to predict the consequences for the Tokyo Olympics scheduled for July 2021, it is hard to envisage how they might safely proceed in a recognisable form unless the next twelve months produce spectacular advances in the form of an effective vaccine or unless massive adaptations are made to allow testing of very large numbers of people on entry to Japan.

### ***References***

Reported Caseload Graphs and data sourced from MHLW as reported by Toyo Keizai - <https://toyokeizai.net/sp/visual/tko/covid19/en.html>

Quantifying SARS-CoV-2 transmission suggest epidemic control with digital contact tracing <https://science.sciencemag.org/content/368/6491/eabb6936>

### ***Resources***

How to get help if you suspect that you have COVID19 (Tokyo residents) <https://stopcovid19.metro.tokyo.lg.jp/en/flow>