The New Phase of Covid-19 Response in Japan (2020/7/13)

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(Born April 29, 1959)

Current positions

- Professor, Department of Virology, Tohoku University Graduate School of Medicine
- Member of Subcommittee on Novel Coronavirus Disease Control
- Member of the Novel Coronavirus Advisory Committee on Basic Action Policies
- Member of the Novel Coronavirus Cluster Response Taskforce, Ministry of Health, Labour and Welfare

Main achievements

From 1991 to 1994, Dr. Oshitani taught virology in Zambia as a specialist of the Japan International Cooperation Agency (JICA). From August 1999 to 2006, he served as an Infectious Diseases Control Advisor at the World Health Organization's (WHO) Regional Office for the Western Pacific in Manila, the Philippines. In 2002, he coordinated the response to severe acute respiratory syndrome (SARS).

Biography

1987 - Graduated from Tohoku University School of Medicine
1987 - Medical intern at the National Sendai Hospital
1991 - Expert at Japan International Cooperation Agency (JICA) (Zambia)
1997 - Graduated from University of Texas School of Public Health with a Master of Public Health
1998 - Assistant Professor of Public Health, Niigata University School of Medicine
1999 - Lecturer of Public Health, Niigata University School of Medicine
1999 - Infectious Diseases Control Advisor, WHO Regional Office for the Western Pacific
2005 - Professor, Department of Virology, Tohoku University Graduate School of Medicine

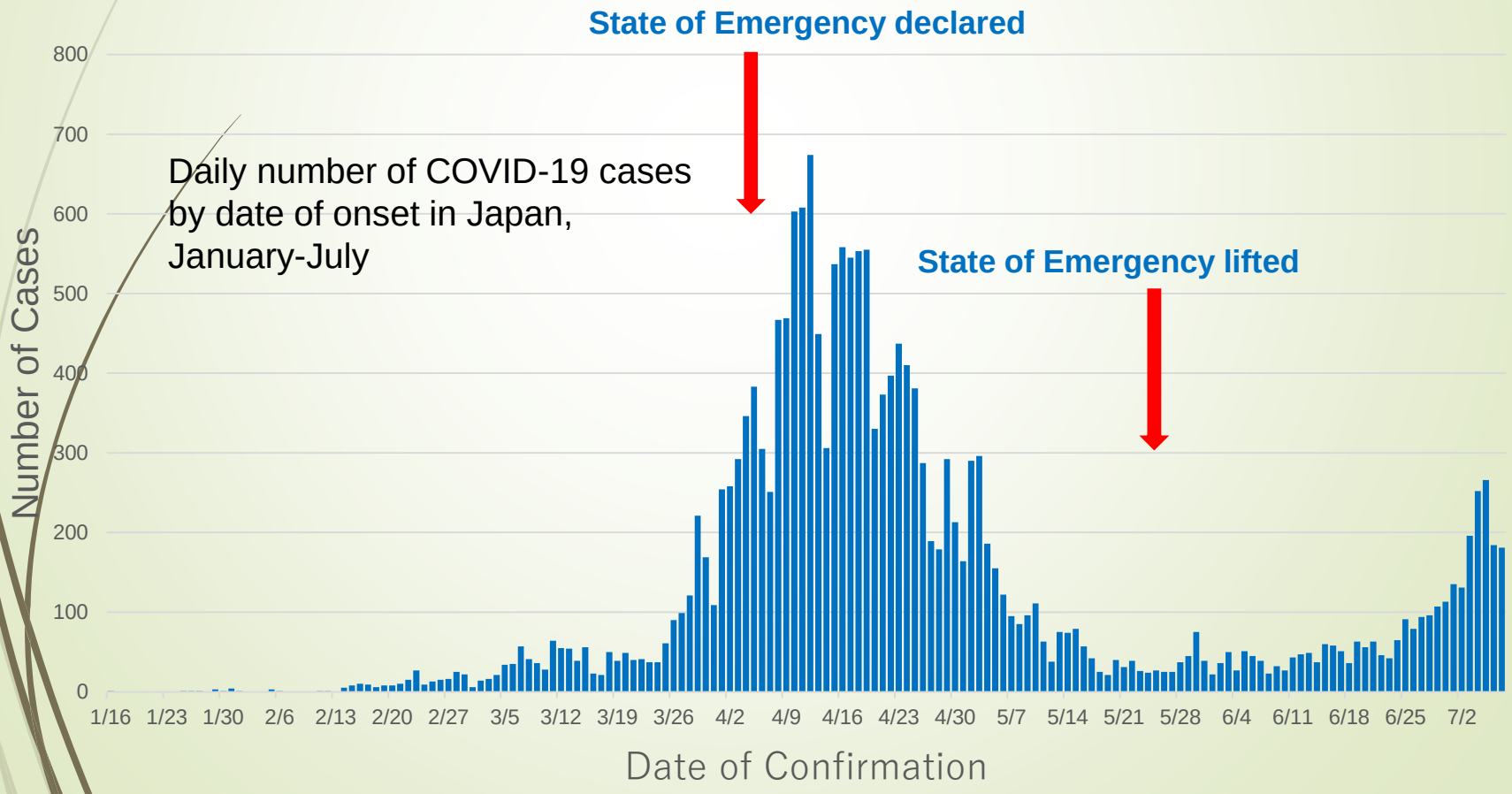
Strategies Up to Now

Strategies to prevent the spread of COVID-19 included active measures to track the disease, as well as ways for individuals to protect themselves

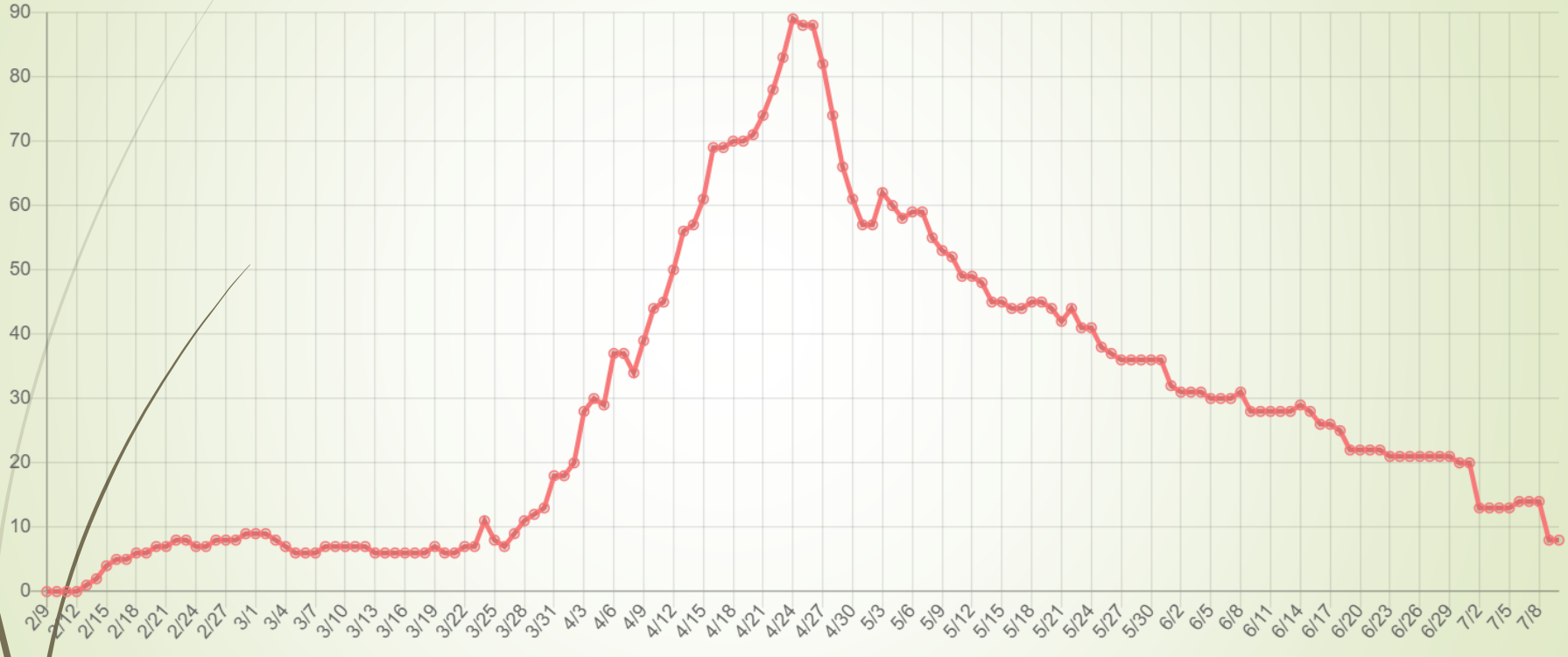
- Retrospective Tracing: Once a patient had tested positive, their activities beforehand were tracked and cross-referenced in order to identify the people and places behind an infection cluster.
- Avoiding the "Three Cs": Closed spaces, Crowded places, and Close-contact settings in order to prevent new clusters from emerging.
- Hand-washing, use of masks, use of disinfectant, and ensuring proper ventilation.

Spread of COVID-19 in Japan

The number of cases of COVID-19 reported daily is being carefully tracked throughout the country. The number of new infections reported had been going down but recently there has been a rise in cases.



Changes in the Number of Critically Ill COVID-19 Patients Using Respirators (including ECMO) in Tokyo



Updated 2020/07/10

https://crisis.ecmonet.jp/

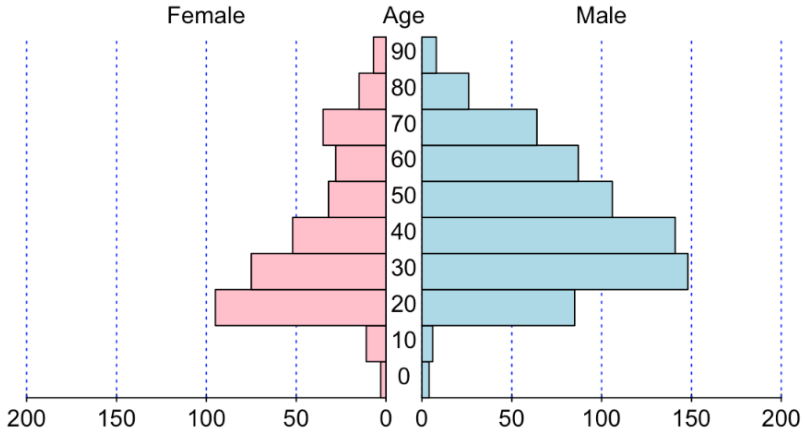
Spread of COVID-19 in Japan

Recent surge in new cases:

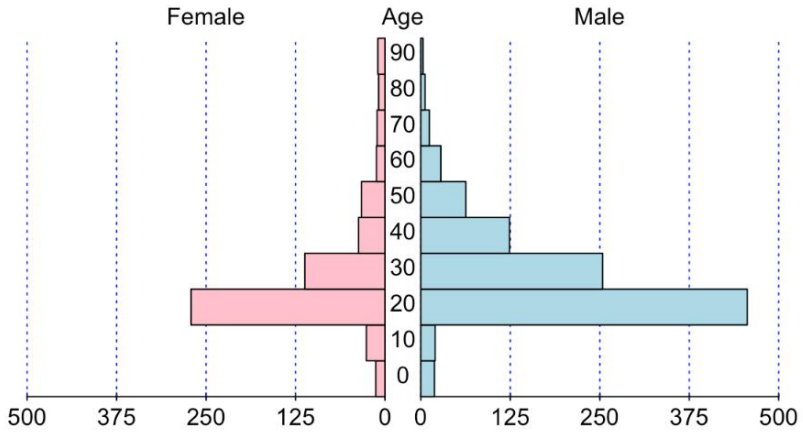
- **Many new cases come from night-life settings (3C environments) through the implementation of pro-active testing**
- **70% of cases are people in their 20s or 30s**
- **Cases that have been difficult to trace, especially young people who develop mild and even no symptom (or due to privacy concerns etc.) have become more visible**
- **Severe cases are still decreasing (5 severe cases in Tokyo as of July 12)**

Age Distribution

Age distribution in Tokyo, reported from March 25th to April 7th



Age distribution in Tokyo, reported from June 27th to July 10th



New Strategies

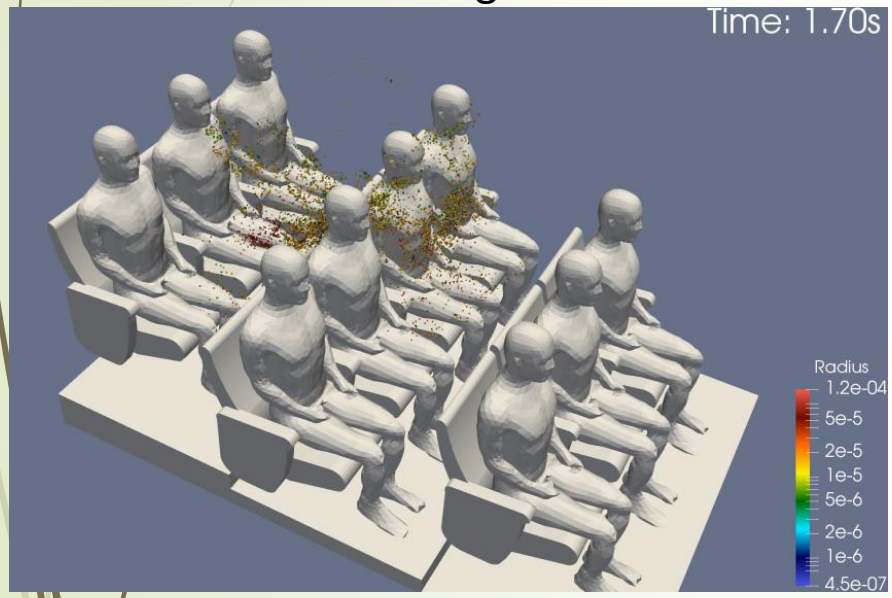
As economic and social activities increase, several new strategies are being launched to better prevent the spread of the disease

- AI Simulations: Models created using AI allows for better predictions of how the disease can spread.
- Contact Tracing: A smartphone app will alert users if they have come in contact with a person who has tested positive.
- Avoiding the three Cs: implementing the guidelines developed by over 100 industrial sectors
- Increase in testing capacities and modified strategy with pro-active testing

AI Simulation of the Spread of COVID-19

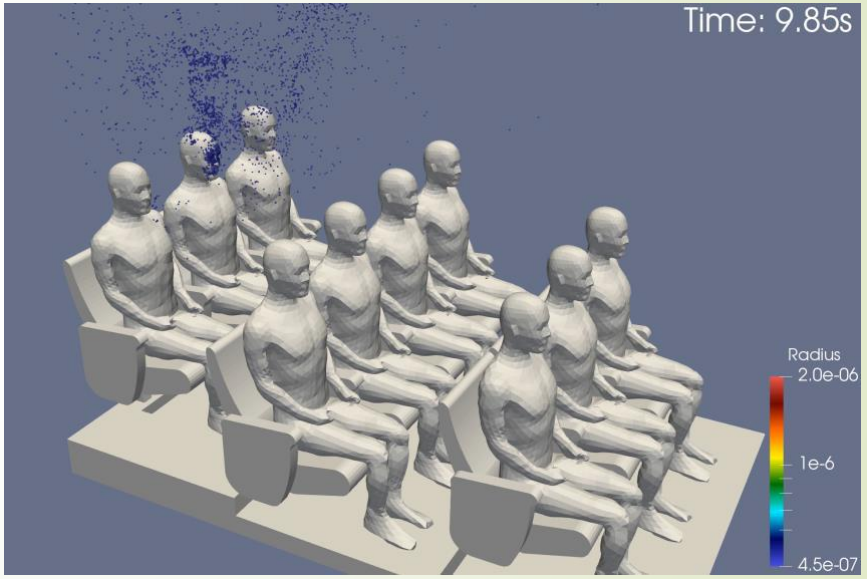
1) Dispersal of Droplets and Small Particles (In Audience Seating Where Loud Voices are being Used)

Not wearing a mask



If a mask is not worn, droplets (as big or bigger than 5㎛) and small particles (smaller than 5㎛) are dispersed in large volumes

Wearing a mask

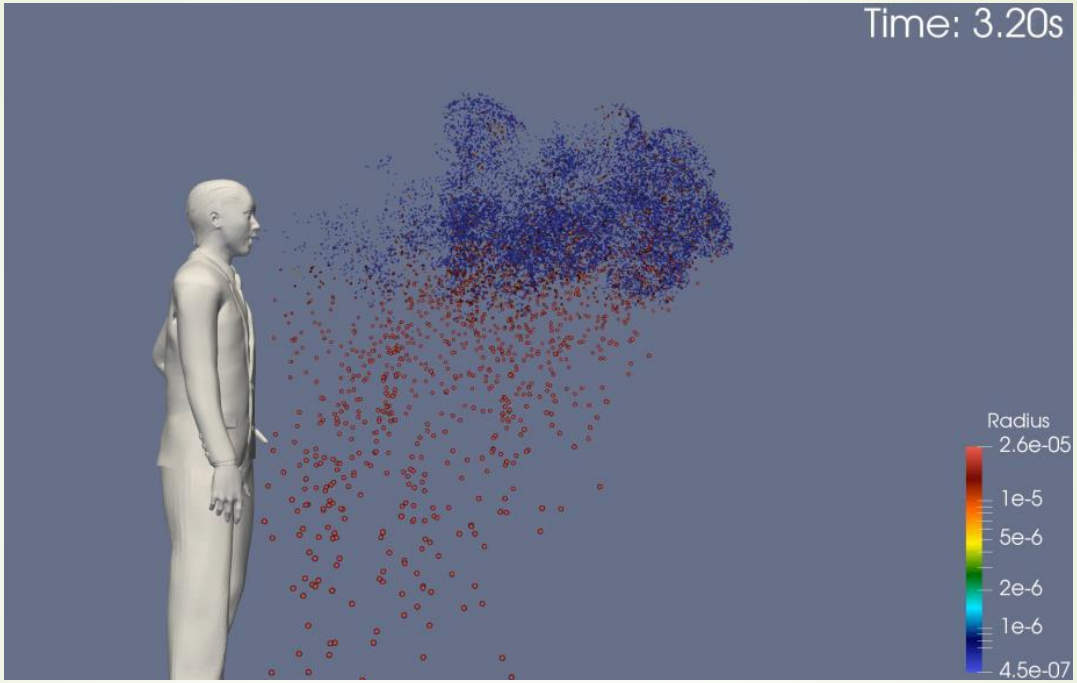


If a mask is worn, dispersal is mostly suppressed, but there is the possibility of spreading small particles to neighboring seats

(Riken/ Kobe Univ Dr. Makoto Tsubokura)

AI Simulation of the Spread of COVID-19

2) Dispersal of Droplets and small Particles (Performer Using a Loud Voice)



① Droplets are dispersed about the same distance as the performer's height

② Small particles hanging in the air

Countermeasures

①Maintaining a distance of 2 meters from the audience seating is effective

②Proper air circulation is an effective measures

(Riken/ Kobe Univ Dr. Makoto Tsubokura)

Strategic Testing: Background

In early days:

- PCR testing capabilities were limited
- The number of beds available for patients suffering from COVID-19 were insufficient
- The quality of the available tests needed to be ensured
- Panic rushes on clinics, hospitals and testing centers needed to be prevented

Summary of Basic Vision and Strategy

- Now that the State of Emergency has been lifted, there is the need to consider infection countermeasures together with social and economic activity.
- Therefore, testing must be conducted in a strategic and more pro-active manner.
- Fundamentally speaking, it is necessary to establish 3 categories of people and places, and to create suitable testing guidelines for each one.

What are the 3 Categories?

① People with symptoms

② People without symptoms, who have been assessed with a high pre-test risk of infection, and/or who work in high-risk areas

③ People without symptoms, who have been assessed with a low pre-test risk of infection, and who work in low-risk areas

Fundamental Plan

① People with symptoms

Greater capacity and more options for testing are available

- A system has now been established where quick consultation, diagnosis and test are possible upon a physician's judgement.
- Antigen tests now have the same approximate accuracy as PCR tests. Results are available after a short time and the tests are covered by health insurance.
- It is possible to perform antigen tests via saliva samples, as with PCR tests. This minimizes the risk and burden not only on patients but also on medical staff.

This group should be tested immediately

Fundamental Plan

② People without symptoms, who have been assessed with a high pre-test risk of infection, and/or who work in high-risk areas

- Places that require close physical contact
  - Hospitals or senior-care facilities
  - Nightlife/entertainment-related industries

- Because of the high risk of infection and high pre-test risk of infection, thorough PCR or other testing is necessary for this group.

<u>This group should be tested in a more pro-active manner</u>

Fundamental Plan

③ People without symptoms, who have been assessed with a low risk of infection

- Includes people who, for peace of mind, want to be tested in order to conduct societal, economic, cultural and other activities.
- Testing, however, is not perfectly accurate (see the next page). Testing only reflects a person's condition at one point in time and continuous testing would be required in order to fully monitor the condition of an individual.

<u>Further discussion is necessary in order to build consensus regarding this group</u>

Risks of False Positives or Negatives

- PCR tests, antigen tests and antibody tests are not fool-proof, and there are issues with false positive and false negative results.

- For example, if the rate for detecting positives is 70% and the rate for detecting negatives is 99%, and 10,000 people are tested with 1% infected:

	Infected	Not infected	Total
Positive PCR Test	70	99**	169
Negative PCR Test	30*	9,801	9,831
Total	100	9,900	10,000

* 30 people will have false negatives (infected but testing as healthy)

** 99 people will have false positives (healthy but testing as infected), nearly the same number as those infected

- False positives may result in people taking unnecessary measures such as self-quarantine and hospitalization. False negatives may result in people unwittingly spreading the disease and receiving delayed treatment.